The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 70. No. 7 CHICAGO, ILLINOIS 107 February 16, 1918

AN EXPERIMENTAL INVESTIGATION OF LIPOVACCINES

A PRELIMINARY NOTE *

E. R. WHITMORE, M.D.
Lieutenant-Colonel, M. C., U. S. Army
WASHINGTON, D. C.
E. A. FENNEL, M.D.
Lieutenant, M. C., U. S. Army
CINCINNATI
AND
W. F. PETERSEN, M.D.
Lieutenant, M. C., U. S. Army
CHICAGO

The advances that have been made in medicine and rgery as a result of the war in Europe have been, most without exception, in the technical improvement methods before used or in the final and practical monstration of the efficacy of certain measures of ophylaxis (such as typhoid vaccination), the basis of ich has been previously established. Among the lvances has been the preparation of lipovaccines, a bject that so far has received little or no attention in is country, but one that seems to us to be of great alue not alone in the relation to immediate medicoilitary problems but also in the possibilities that it fers in the prophylaxis of a number of infectious iseases in which vaccine immunization heretofore has een of limited applicability.

It is rather curious that the obvious expediency of reparing bacterial vaccines in a vehicle less rapidly sorbed than physiologic sodium chlorid solution has en completely ignored in the technic of vaccine work, spite the fact that an ever increasing number of pharacologic preparations in oil have become available r subcutaneous and intramuscular injections. Wasrmann, it is true, made up a staphylococcus vaccine the form of an unguentum, but it was with the purse of making the vaccine available to the patient out hypodermic injection. Zeuner used soap solun in making a tuberculin, but here again the object the complete solution of the tubercle bacillus, not lteration of the rate of absorption. Whitmore e similar experiments in leprosy. Le Moignic and oy[1] grasped the evident possibilities that presented nselves in the lipovaccines for use in prophylactic k. They used at first a mixture of liquid petrom and lanolin as a base for the vaccine; later, how-r, vegetable oils were substituted. Achard and x[2] reported favorably on similar experiments; they used olive oil in their work; they noted, however, that the oil, if heated at too high a temperature during sterilization, seemed to cause abscess formation at times.

ADVANTAGES OF LIPOVACCINES

Among the advantages derived from the use of oil vaccines may be considered: (*a*) the diminution of both the local and the systemic reaction; (*b*) the feasibility of giving sufficient vaccine at a single injection properly to immunize the individual; (*c*) the persistence in the individual of a focus from which the immunization proceeds over a period of several months with a resulting lengthening of the period of immuni its (*d*) the actual detoxicating effect of certain lip that can be incorporated in the vaccine, and (*e*) prevention of autolysis and deterioration of the vaccir

The vaccine used in the Army for prophylaxis against typhoid and paratyphoid fevers contains 1,000 million typhoid and 750 million each of paratyphoid A and B per cubic centimeter, given in three doses, the first of 0.5 c.c., the second and third of 1 c.c. each, the total number of organisms used being, therefore, 6,250 million. This method of immunization, as introduced by Colonel Russell, gives practically complete protection for a period of several years.

The reactions following the injections, however, are at times rather severe. A period of malaise extending for from twelve to forty-eight hours is not uncommon; the local reaction, as a rule, is comparatively negligible.

When a dose of 7,500 million organisms is prepared as a lipovaccine, either in olive oil or oil of sweet almonds, it can be given with less local reaction than that which follows a single dose of the aqueous vaccine, and an almost entire absence of constitutional effects.

The possibility of giving the entire immunizing dose at one time is, for military purposes, an advantage in relieving the medical service from a not inconsiderable routine of injections and record work as well.

The persisting focus of slowly absorbing vaccine may be of certain benefit, too, in the effort to protect against diseases in which prophylactic immunization, as heretofore observed, has had but transitory value. Wright, in working with aqueous pneumococcus vaccination of the Rand laborers, found that protective effects seemed to disappear after a period of three months. With a lipovaccine, absorbing over a long period of time, the immunity might conceivably be prolonged. The same phenomenon may be expected to apply to meningococcus vaccination.

Lipovaccines make it possible to take advantage of the distinct detoxicating effects of certain lipoid combinations, and in this way lessen the reaction, quite apart from the delayed absorption. It is well recognized that the true toxins are lipotropic, detoxication by means of brain substance, by lecithin, by choles-

---

From the Department of Pathology, Army Medical School.

Le Moignic and Pinoy: Compt. rend. Soc. de biol., 1916, 79, 352.

Achard and Foix: Compt. rend. Soc. de biol., 1916, 79, [illegible] terols, and by soaps having been carefully studied. Even when we are dealing with bacterial endotoxins and the intoxication arising from the splitting of bacterial proteins, it is very probable that some lipoids can act as inhibiting and neutralizing factors. The incorporation of lanolin (consisting largely of cholesterols and fatty acids) in the lipovaccines very probably is of value in this direction.

Finally, and from a technical point of view, a not unimportant advantage in the lipovaccine lies in the fact that autolysis of the organisms is largely prevented and the deterioration of the vaccine reduced. In routine work the organisms for vaccine are killed at a temperature of 53 C., leaving the intracellular enzymes of the bacteria partially intact and permitting autolytic processes to continue. This is particularly true in such coccus forms as the pneumococcus and meningococcus. In the preparations of the lipovaccines the young cultures are rapidly dried—within a half hour after scraping from the agar—and either are kept dry until used or ground and mixed with the proper oils immediately, in which condition autolysis is largely held in abeyance.

PREPARATION

In view of the possible advantages presented, we e prepared a series of vaccines in this laboratory experimental study. These include:

A. Typhoid-paratyphoid (A and B).
B. Pneumococcus (Types I, II and III).
C. Meningococcus (Types 1, 10, 30 and 60).
D. Dysentery (Shiga, Flexner and Y).

The method of preparation that we have tentatively employed in making these vaccines is, briefly, as follows:

> Bacteria are grown for about twenty hours in large Petri dishes on mediums made up essentially as suggested by Vedder; that is, a meat infusion, soluble starch agar (3 per cent. agar) enriched with hemolized rabbit's blood. While it would be possible to use broth cultures for the growth of the organisms, we rather believe that a better immunizing product is obtained on agar. The growth is scraped from the smooth, firm surface by means of a small rubber squeegee, and transferred to a small Petri dish. The bacterial mass or paste is next dried at 53 C. in an oven in which a current of sterile dry air passes over the opened dishes; the drying seldom requires more than forty-five minutes, depending, however, on the thickness to which the bacterial mass has been spread. After thorough drying, the bacteria remain in the form of fine, glistening, brittle scales, which are readily removed by any sharp instrument. The dry weight of the organism per thousand million being known (a large number of these determinations are at present being made by Hersfeld in this laboratory), the bacteria are weighed under sterile precautions and ground in a ball mill for at least twenty-four hours. We add a few cubic centimeters of chloroform-ether to the grinding mass at the beginning of the process to insure the final killing of any organism still viable at that time.
>
> A second method that we have used in some preparations has been to grow the organisms in Kolle flasks, wash off the growth with a small amount of distilled water, freeze the latter, and dry the frozen bacterial mass in vacuo. Both methods give excellent results, although for the production of large quantities of vaccine the first method described seems more expedient.
>
> After thorough grinding, the admixture of the lipoids and oils is made as follows: Sterile anhydrous lanolin in an amount sufficient for the percentage desired in the final mixture (we have employed 10 per cent.) is gently warmed, and one-half volume of oil (olive oil or oil of sweet almonds) added to the lanolin, the whole being poured into the ball mill. The viscid mass is mixed for another six or eight hours, at the end of which time increasing amounts of oil are added at intervals until the volume has been brought to the quantity desired.

The choice of oils used in the preparation is rather limited. The mineral oils were first tried by the French observers, but were evidently soon discarded in favor of vegetable oils, such as olive, sweet almond and poppy. The oils used must be nonirritating, of slow absorbability, must not be too viscid for injection, should withstand complete sterilization without alteration, and must be available in the market in reasonable quantities. Mills' work[3] gives considerable information concerning the use of a variety of oils for subcutaneous injection.

We have heated some of our preparations to 53 C. for thirty minutes, although this step is probably not necessary.

After bottling, sterility is tested by means of bouillon shake cultures, and animal inoculations are made for each run of vaccine.

THE TYPHOID-PARATYPHOID A AND B VACCINE

Experiments with a lipovaccine of typhoid-paratyphoid A and B bacteria prepared in this manner and containing 7,500 million organisms to the cubic centimeter have led to the following results:

(*a*) The agglutination titer of rabbits immunized with a single dose of lipovaccine compares favorably with that obtained with the three doses of aqueous vaccine.

(*b*) Protective experiments made in guinea-pigs indicate a degree of protection equal to that obtained with an aqueous vaccine. Table 1 presents a typical protocol. Young guinea-pigs were injected with 1 c.c. of vaccine, Dec. 1, 1917. December 11, three were injected intraperitoneally with increasing doses of fresh cultures of typhoid organisms.

TABLE 1.—PROTECTIVE EXPERIMENTS IN GUINEA-PIGS

Controls			Immunized Animals		
Weight, Gm.	Loops of Bacteria	Result	Weight, Gm.	Loops of Bacteria	Result
510	4	+ 12/15/17	480	4	+ 12/17/17
590	5	+ 12/16/17	580	5	Remained well
500	6	+ 12/14/17	480	6	Remained well

(*c*) The agglutination in human serum following a single inoculation is equal to or exceeds that obtained following the aqueous Army vaccine. In the chart the result of the composite agglutinin response in three groups of physicians of twelve each, who were inoculated with our preparation, with a French preparation and with the Army triple vaccine is shown.

It is rather interesting to note that the agglutinin response to paratyphoid B in the lipovaccine group lags far behind the others. Whether this is due to the greater dosage of this particular organism employed in the vaccine, or to some other factor, we do not know.

(*d*) The reaction, both local and general, following the injection of the vaccine is relatively mild, and of the original group of twenty-four men who received the oil vaccines, only one gave a temperature rise of more than 1 degree.

THE PNEUMOCOCCUS VACCINE

It is, of course, well known not only that well marked differences exist in the human mortality for the different types of pneumococci, but also that the direct toxicity of the organisms varies. In a preliminary titration of the toxicity of the drier organisms injected into mice subcutaneously in salt solution, the results given in Table 2 were obtained.

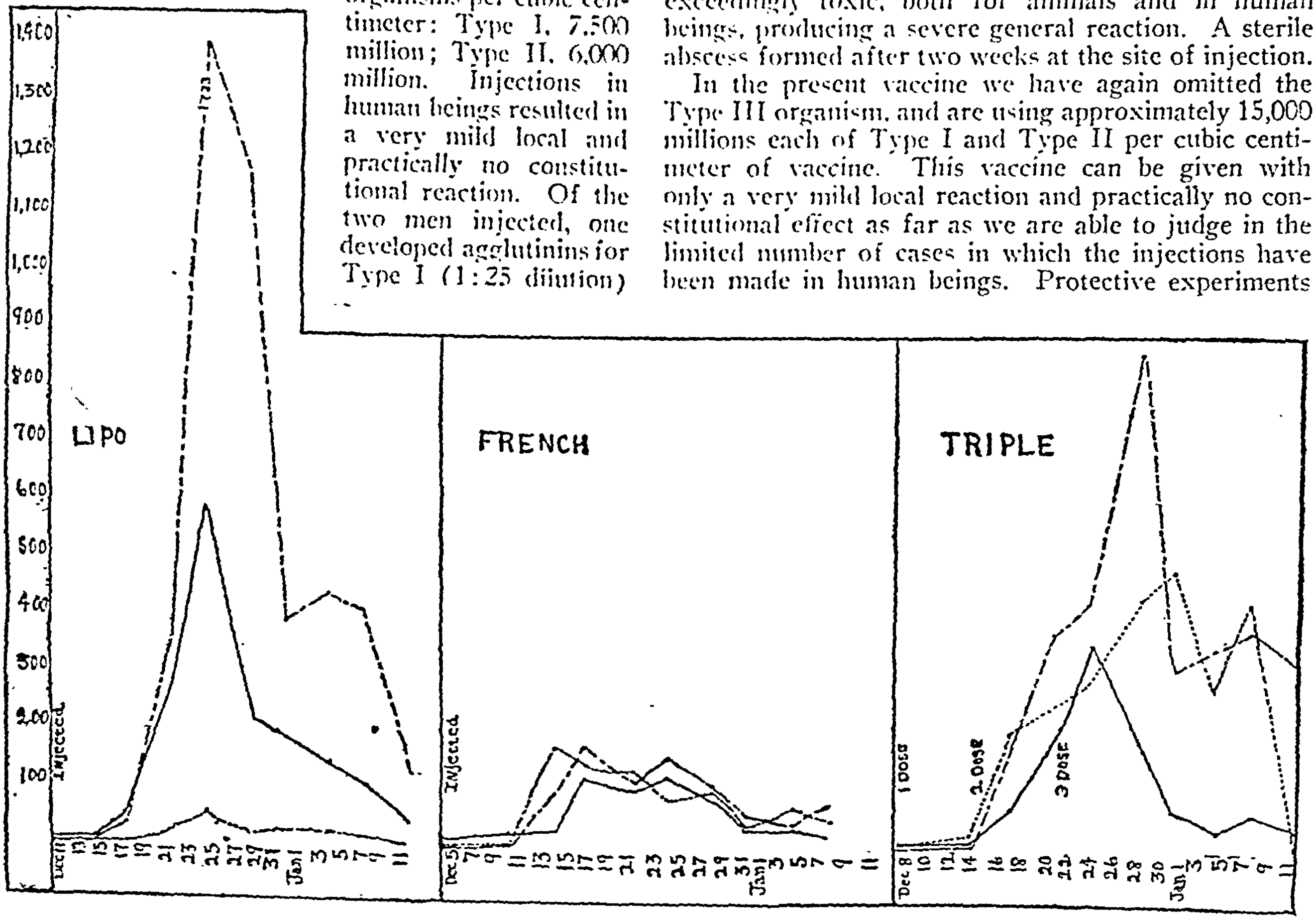
---

[3] Mills, L. H: The Utilization of Fats and Oils Given Su taneously, Arch. Int. Med., May, 1911, p. 694.

TABLE 2.—TOXICITY OF PNEUMOCOCCUS VACCINE FOR MICE

Type I	Type II	Type III
20 mg. + 24 hours	20 mg. Remained alive	20 mg. + 2 days
10 mg. Remained alive	10 mg. Remained alive	10 mg. + 3 days
5 mg. Remained alive	6 mg. Remained alive	5 mg. + 3 days
2.5 mg. Remained alive	2.5 mg. Remained alive	2.5 mg. Remained well

In our first vaccine we therefore omitted Type III, the vaccine being made up to contain the following organisms per cubic centimeter: Type I, 7,500 million; Type II, 6,000 million. Injections in human beings resulted in a very mild local and practically no constitutional reaction. Of the two men injected, one developed agglutinins for Type I (1:25 dilution) still existent after six weeks; for Type II (1:20 dilution) these remained for two weeks.



Comparative agglutination curves of our triple typhoid vaccine in oil, our triple typhoid vaccine in saline solution, and the French triple typhoid vaccine in oil. The agglutinations are in agglutinin units; to get the dilution, it is necessary to multiply by the factor set down for each organism. Composite, twelve men in each group. Continuous line, Paratyphoid A; dotted line, Paratyphoid B; Factor, T=8.0; A=4.0; B=4.0.

A second man developed agglutinins for Type I (1:15 dilution), and for Type II (1:40 dilution); but after six weeks no agglutinins were present.

Two rabbits were injected at the same time; the serum of one, unfortunately was lost. The other rabbit developed agglutinin for Types I and II (1:10 and 1:20 dilutions, respectively).

Protection experiments in mice with this vaccine resulted as follows: Six mice were injected with 0.5 c.c. and six with 0.25 c.c., Nov. 24, 1917; December 10, they were injected with a twenty-four hour broth culture of Type II with the result given in Table 3.

A second series of mice was vaccinated, Dec. 5, 1917 (0.25 c.c.), and injected, Jan. 5, 1918, with a relatively avirulent strain of Type I, with the result given in Table 4.

TABLE 3.—PROTECTION EXPERIMENTS IN MICE WITH FIRST VACCINE

Controls			Vaccinated			
			0.25 C.c.		0.5 C.c.	
1.	1/500 c.c.	+ 12/12/17	1.	Remained alive	1.	+ 12/12/17
2.	1/1,000 c.c.	+ 12/12/17	2.	+ 12/12/17	2.	+ 12/12/17
3.	1/5,000 c.c.	+ 12/12/17	3.	+ 12/12/17	3.	+ 12/12/17
4.	1/10,000 c.c.	+ 12/11/17	4.	+ 12/12/17	4.	+ 12/12/17
5.	1/50,000 c.c.	+ 12/11/17	5.	+ 12/12/17	5.	+ 12/13/17
6.	1/100,000 c.c.	+ 12/12/17	6.	Remained well	6.	Remained well

The second preparation was made up containing approximately 15,000 million per cubic centimeter of Types I, II and III. This vaccine, however, was exceedingly toxic, both for animals and in human beings, producing a severe general reaction. A sterile abscess formed after two weeks at the site of injection.

In the present vaccine we have again omitted the Type III organism, and are using approximately 15,000 millions each of Type I and Type II per cubic centimeter of vaccine. This vaccine can be given with only a very mild local reaction and practically no constitutional effect as far as we are able to judge in the limited number of cases in which the injections have been made in human beings. Protective experiments in mice and agglutination experiments in man with this vaccine are not sufficiently advanced to draw definite conclusions as to its probable value, although the recent work of Lister in South Africa would seem to indicate very definite protective value for pneumococcus vaccination properly carried out.

TABLE 4.—RESULTS WITH AVIRULENT STRAIN OF TYPE I

Control			Vaccinated mice	
1.	1/1,000	+ 1/6/18	1.	+ 1/7/18
2.	1/5,000	+ 1/7/18	2.	Remained well
3.	1/10,000	+ 1/7/18	3.	+ 1/7/18
4.	1/50,000	Remained well	4.	Remained well

MENINGOCOCCUS VACCINE

In the preparation of meningococcus vaccine we have used Strains 1, 10, 30 and 60 (Rockefeller), of which we have incorporated approximately 10,000 million of each strain per cubic centimeter. The meningococcus shows considerable variation in weight, corresponding to its fluctuation in morphology; Strain 1, however, weighs approximately 0.1 mg. per thousand million with considerable consistency. We have, therefore, made up the vaccine with 1 gm. of each of the dried organism per liter.

We have injected a series of rabbits (twelve) with this vaccine, using a dose of 1 c.c., and in a series an additional dosage of 1.5 c.c. three days following the first dose. With two exceptions, all show decided agglutination for Strain 10; several for Strain 30; the majority for Strain 60, some in a dilution of 1:200. Only one of this series showed agglutination for Strain 1 (1.25 dilution).

The men injected have been divided into three groups:

One group of twenty-five received a 1 c.c. dose of this vaccine, with very mild local and no constitutional effect. Of these only two have so far given any agglutinin response (three weeks).

A second group of twenty-five received 1 c.c., Jan. 2, 1918, and a second dose, January 15. Following the second dose, two men complained of some constitutional effects.

In this group no agglutinins have developed by January 21 for Strain 1; all but five have developed agglutinins for Strain 10 (some as high as 1:800 dilution). Five have developed agglutinins for Strain 30 in the lower dilutions (1:12 and 1:25). None have responded to Strain 60.

A third group of five men received 1 c.c. of a vaccine made up twice as strong as the previous vaccine (2 gm. of each type to the liter), January 18. This vaccine was followed after twenty-four hours by a moderate general reaction. Of this group, one responded in four days in the lower dilutions to Strain 1; three to Strain 10, and one to Strain 30; but none to Strain 60.

THE DYSENTERY VACCINE

Vaccination against bacillary dysentery has heretofore encountered serious difficulties because of the pronounced toxicity of all aqueous preparations employed. The attenuation of the toxicity of dysentery vaccine when prepared in oil is illustrated in the following experiment:

> Five thousand million Shiga bacilli (aqueous vaccine) per cubic centimeter injected into a rabbit was followed by death in two days.
>
> The same dose, prepared as an oil vaccine, was well tolerated by a rabbit, although no agglutinin production was to be observed.

For preliminary experiments we have prepared a vaccine containing 2,000 million each of the Shiga, Flexner and Y types. Injection into rabbits has resulted in the following agglutinin curve:

One rabbit received 1 c.c., Dec. 17, 1917, and another 2 c.c., Dec. 17, 1917. Both have responded with agglutinins to all three strains, the rabbit receiving the larger dose agglutinating in the following dilution: Shiga, 1:100; Flexner, 1:400; Y, 1:1,600.

Two human beings were injected, one receiving 0.25 c.c., the other 1 c.c. In neither case were the reactions at all marked either locally or systemically. There was no agglutinin response in the first case; the second man has responded in the following dilutions: Flexner, 1:200; Y, 1:37; Shiga, 1:25.

Because of the demands of other work, we have not carried these experiments farther for the time being.

METHODS OF PRESERVATION

In the preparation of aqueous vaccines, certain of the coal tar preservatives—tricresol, etc.—are commonly added as preservatives. Unfortunately, as Koch showed in some of his early work, practically all of the common disinfectants and preservatives are lipotropic, and in the presence of lipoids and fats are without effect on bacteria. Both vegetative and spore forms of tetanus, and Welch bacilli seeded into oils and treated at room and incubator temperature with large percentages of ether and chloroform, remain viable (Dr. Pritchett of the Rockefeller Institute very kindly carried out these experiments for us). Iodin has so far given us the best results, and has the advantage that it soon combines with the unsaturated oils, and is thereby rendered inert after it has served its purpose. Whether iodin will alter the antigenic property of the vaccine is still to be determined. The attenuation of toxins by means of iodin is, of course, a well recognized procedure. At present no antiseptic of any kind is added to the vaccine as we prepare it.

METHOD OF ADMINISTRATION

Because of the tendency of the oil of the vaccine to make the glassware and needles slippery, the injection of the lipovaccine seems at first to be more tedious and disagreeable to one who has worked with the aqueous vaccine for any length of time. Certain precautions must be taken, too, that are less essential in the manipulation of the aqueous vaccine. The skin should be sterilized with iodin. The vaccine should be warmed slightly (37 C. is sufficient) to facilitate the ready flow of the oil. It is well to use a large bore needle (if the point is kept properly sharpened the pain of injection is not increased thereby), and to draw up the oil into the barrel with the needle detached. Absolute care must be observed to prevent an intravenous injection. The large size of the injecting needle leaves a puncture from which the oil has a tendency to run back; to prevent this we press a small iodin swab firmly against the puncture until the flow ceases. This prevents, too, the occurrence of superficial puncture infections, which are apt to follow if the needle puncture is permitted to remain open and the clothing pulled down over it.

CONCLUSIONS

While we regard our work as purely preliminary, we have gained the impression that the lipovaccine offers a number of advantages over the aqueous preparation. The production of the vaccine is, of course, more laborious and expensive, and a number of technical problems remain to be studied in connection with it, together with detailed investigations of the comparative antigenic value. Apart from the typhoid-paratyphoid A and B preparation, the pneumococcus and meningococcus vaccines have been of interest to us because of the apparently ready response in agglutinins of both animals and man to a single injection. Whether such a response properly portrays the protective value of the vaccine is, of course, not to be determined in so short a period of time as has been available to us. Protection tests in animals vaccinated with the triple typhoid lipovaccine have indicated the development of a considerable degree of resistance, and similar experiments carried out in mice following pneumococcus vaccination gave some evidence of protection. The latter experiments, together with those under way with meningococcus vaccine, are, however, not sufficiently advanced to permit us to draw definite conclusions.

TYPE DETERMINATION OF PNEUMOCOCCUS INFECTION

AS PRACTICED IN THE FIELD WITH AVERY'S NEW CULTURAL METHOD

WARREN T. VAUGHAN, M.D.
Lieutenant, M. R. C., U. S. Army
ANN ARBOR, MICH.

The clearly demonstrated beneficial results in the use of Type I serum for the treatment of cases of lobar pneumonia infected with Type I pneumococcus has led to the introduction in the hospitals of the United States Army of type determination as a part of the routine treatment of cases of lobar and bronchopneumonia. The shortage of mice, however, has been so great that in many places it has been absolutely impossible to obtain these animals for laboratory use. It is indeed fortunate, therefore, that the cultural method recently devised by Avery, the so-called "artificial mouse," has been placed at the disposal of laboratory workers in the Army base hospitals. I have used the method described by him in one of the base hospitals, and it has given complete satisfaction, as far as practical results are concerned. Since laboratory equipment in these institutions is necessarily somewhat curtailed, and since it is essentially the same in all such laboratories, I take this occasion to describe in some detail the routine that I have worked out, and I do so with the hope that it may be of use to others. For reasons of economy, it has been found necessary, first, to use as little apparatus as practicable, and secondly, when working with the sputum itself or with mediums containing pneumococci, to use exceedingly cheap apparatus which may be immediately disposed of by burning, thereby saving time and trouble in subsequent cleaning and sterilization. The method here outlined is rather rough, but it is to be recommended on account of its simplicity, reliability and rapidity of execution.

APPARATUS

The following is a list of articles required in the carrying out of group determination:

Beef infusion broth. (One thousand c.c. should be enough for the determination of 250 sputums.)

Twenty per cent. sterile glucose solution. (This can be made by autoclaving 50 c.c. of distilled water in a 4 ounce bottle with a rubber stopper, and subsequently adding to this 10 gm. chemically pure glucose. This is then sterilized by boiling.)

Sterile defibrinated blood. (This can best be obtained by autoclaving an ordinary 2 or 4 ounce bottle with a rubber stopper, in which have been placed several glass beads. Twenty or 30 c.c. of blood may then be drawn from the arm vein of a patient whose blood is known to be normal, a sterile glass syringe, as for the Wassermann technic, being used. This is immediately transferred to the sterile bottle, which is then shaken to defibrinate the blood.)

(These three ingredients of the culture mediums may be kept separately in the ice-box, and portions drawn off, as needed, with a sterile pipet. There is no great danger of contamination; but if this method is followed, no larger amounts of blood and glucose solution should be kept in each bottle, and the sterile beef infusion broth should be in 250 or 300 c.c. lots. The other method that may be followed is that of keeping the culture medium in centrifuge tubes with the various ingredients already mixed and in the proper proportions.)

Two 4 ounce bottles for glucose solution and blood.

From twelve to twenty-four glass beads.

Five or more 10 c.c. graduated pipets, which may be rolled up in a towel and sterilized by dry heat.

Twelve or more small nongraduated pipets about 8 inches long, which may easily be made from ordinary glass tubing of about 7 mm. diameter.

Twenty-four or more centrifuge tubes or heavy glass test tubes of similar size, suitable for using in a centrifuge.

Agglutination tubes, from four to six dozen or more. (The small, thick glass tubes, 3 inches long and three-eighths inch in diameter, usually on hand in the base hospital laboratories, are entirely satisfactory for this purpose.)

Porcelain dish for concentrating urine.

Four deep glasses for decolorizing Gram's stain, etc. (If regular glasses are not on hand, nurses' medicine glasses are very satisfactory.)

Gram's stain.

Hiss' capsule stain.

Ziehl-Neelsen stain.

Microscope with oil immersion lens.

Glass microscope slides.

Incubator (37 C.).

Dishes for holding disinfecting solution, preferably cresol. (One should be about the size of a 1 quart Mason jar, and is used as a receptacle for contaminated pipets. A Mason jar will do, or another article that is always on hand is an empty tin can for alcohol, 2 pound size, the cover of which may be removed with a can opener or by merely melting the solder by inverting on a hot stove lid. Tin wash basins are satisfactory for discarded centrifuge and agglutination tubes. The bottom half of unused white enamel cuspidors is of convenient size and shape. The work done at this base hospital was in a temporary laboratory located in the pneumonia ward, and it was decided that the cuspidors regularly allotted to the ward were thus being put to infinitely greater advantage than had they been standing on the floor of the ward.)

Alcohol lamp.

Tripod for porcelain dish.

Platinum loop.

Immune serums, Types I, II and III, for diagnostic purposes.

Six medicine droppers for staining.

Two rubber nipples for use on nongraduated pipets.

Cresol solution.

Test tube racks.

METHOD OF PROCEDURE

As soon as the patient is admitted to the ward, a fresh sputum specimen is sent to the laboratory, where it is stained by Gram's stain and by Hiss' capsule stain. Frequently several sputums are to be examined at once, and the culture medium, if not already stored in the centrifuge tubes, is now made up from the three bottles of broth, blood and glucose. With a sterile 10 c.c. pipet, 10 c.c. of broth are drawn up and distributed equally into three centrifuge tubes. Provided the pipet is not contaminated by touching anything, this process can be repeated with the same pipet until the desired number of tubes have been prepared. If sterile pipets are scarce, the same pipet may now be used to draw up glucose solution, and approximately 0.2 c.c. is distributed to each of the centrifuge tubes. Blood is now distributed in the same manner and in the same amount as the glucose solution. This preparation of medium takes only a few minutes. It must be em sized, however, that whenever not in use, the ents *must* be kept in the ice-box.

A portion of the sputum that has been brought to the laboratory in a nonsterile pasteboard sputum cup is stained by Gram's stain, and if found to contain large numbers of pneumococci, it is washed through three washings of sterile physiologic sodium chlorid solution and then transferred to the culture medium in the centrifuge tube. We have found it convenient to cut strips of thin cardboard about 10 cm. long, 2 cm. wide at one end, and 0.5 cm. at the other, which are used to pick up a portion of the sputum the size of a kidney bean and place it in the tube. Next, an important procedure, is to loosen the sputum from the wall of the centrifuge tube and make sure that it is floating free in the fluid. Otherwise, when later centrifugalizing is attempted, the mucus may adhere to the side of the glass and be thrown down with great difficulty. The sputum is thus loosened by stirring with a slender wooden applicator about 5 inches long, such as is commonly used in swabbing throats. This is much easier than stirring with a wire, which must subsequently be sterilized over a small alcohol flame. The culture is now placed in an incubator for from five to six hours at 37 C. A water bath has the advantage that the tubes heat up more rapidly, and such may easily be improvised merely by the placing of a pan of water inside the incubator.

The sputum cup, cardboard spatulas and wooden applicators are now easily disposed of by being thrown into the fire. When one is running from six to ten or more sputums at one time, this is a great saving in time and materials.

Satisfactory test tube rancks may be made, if necessary, out of ordinary 2 by 4 inch boards of about 1 foot length, into one broad surface of which two or three rows of holes of desired diameter have been bored to a depth of about 1 inch.

After proper incubation, smears are made from the culture and stained with Gram's stain and with Hiss' capsule stain. The growth of pneumococcus is as a rule very abundant at this time, as shown by microscopic examination. Other organisms for which the medium is not suitable have not multiplied to any remarkable extent. The size and shape of the pneumococcus is here noted in the records as well as the extent of capsule development. If the growth is found not to be abundant at the end of six hours, the incubation may be prolonged. This, however, is rarely necessary.

After microscopic examination, the centrifuge tubes are centrifuged at low speed (high speed on the ordinary centrifuge) for from two to five minutes or more, after which the supernatant fluid from each tube is pipetted with the nongraduated pipet and a rubber nipple, into each of the agglutination tubes in 0.5 c.c. portions. To the first tube is added an equal amount of Type I serum, to the second Type II serum, and to the third, if on hand, Type III serum. Each tube should be shaken after the serum is added, and then they are all incubated for two hours. Usually a positive reaction occurs within one hour, and consists in the settling out of a flocculent precipitate, leaving a clearer supernatant fluid than in the case of the other tubes from the same sputum, and on agitation of the tube, the rather large floccules become evenly distributed throughout the fluid. If no such precipitation or agglutination occurs in any of the three tubes, the assumption is that the infection is with a Type IV organism.

If sterile ox-bile can be obtained, the type determination may be hastened by adding 1 c.c. of clear bile to the culture after five or six hours' incubation in the water bath, and incubating for twenty minutes, a process which, as Avery has shown, dissolves the pneumococcus cellular substance, with the consequent liberation of a much greater concentration of soluble pneumococcus substance available for the precipitin reaction. After centrifugalization, then, equal amounts of the supernatant fluid and of immune serum will show and almost immediate positive reaction in case of Type I, II or III infection, and subsequent incubation is unnecessary.

Although it is highly desirable to work with sterile apparatus, sterile centrifuge tubes, agglutination tubes and pipets, yet in the laboratory of a base hospital, where the work is extremely heavy and the facilities are at times rather limited, it is frequently more practical to use when possible articles that are thoroughly clean but not necessarily sterile, except through the process of boiling. The test tubes and centrifuge tubes may be nonsterile. At least four 10 c.c. pipets must be sterile—one for the preparation of culture medium in centrifuge tubes and one for each of the three immune serums. The nongraduated pipets for transferring culture from centrifuge tubes to agglutination tubes do not need to be sterile, and if they are very scarce one may be used for all sputum specimens, care being taken to rinse out the pipet several times in clean water after every transferal of broth culture. Organisms might be transferred in this manner, but not enough of the culture medium could be transferred to interfere with the agglutination or precipitin reaction; any transferred organisms would not in two hours have sufficient time to grow to an extent great enough to interfere with the reaction. This is demonstrated by the fact that when we have obtained a Type I or a Type II organism while running ten or more sputums at once, there was not the slightest suggestion of Type I or Type II, as the case may be, in the adjoining agglutination tubes. However, since it is necessary to sterilize a portion of the pipets, it is no additional trouble to sterilize by dry heat, at the same time, all of those used.

COMMENT

Certain points require especial emphasis.

First and foremost, the sputum specimen must be sputum raised from the chest and not contaminated by saliva. Avery reports that in the use of his new method, in only three cases were the results at variance with those obtained from mouse inoculation. In these three instances the mouse culture showed Type I infection to be present, whereas the artificial medium showed absence of Types I, II or III organisms. On repetition with carefully washed sputum which was thoroughly broken up in a mortar, the results with the artificial medium were found to correspond with those of the mouse method. As Avery has pointed out, in the peritoneal cavity of a mouse the more virulent organism will outgrow the less highly infectious Type IV organism, but in broth culture the two types will grow with equal rapidity, and the one that is present in the greatest concentration to begin with will be the predominating organism after five or six hours' cultivation.

It is frequently difficult to find ward attendants who can readily comprehend the importance of obtaining uncontaminated sputum, and it may be advisable to instruct one nurse or ward master in each ward, and to hold her or him responsible for proper collection. If a pneumonia patient finds it impossible to raise sputum while lying on his back, he can often be made to cough while lying on his unaffected side, and a fit of coughing once started usually terminates in the expulsion of one mass of sputum entirely sufficient in amount for the laboratory examination.

The laboratory worker should be instructed never to accept a sputum specimen that is contaminated with saliva.

In order to free the collected sputum from contaminating mouth organisms, especially from the Type IV pneumococcus, which is so frequently present in the normal saliva, Avery recommends washing the specimen in two or three changes of sterile saline solution and subsequently grinding it in a sterile mortar to liberate the infecting organism from the interior of the pellet of sputum, previous to incubation. We have insisted on this washing in sterile salt solution; but since sterile mortars are not numerous in the equipment of a base hospital laboratory, we have replaced the latter procedure by thorough agitation of the sputum in the culture medium, with wooden applicators as previously described. By this method the sputum may be quite efficiently broken up.

It must be emphasized that a report of Type IV pneumococcus infection is a negative report. It is analogous to a report of "nothing found." In every Type IV pneumococcus report there is the possibility of salivary contamination, and it is a good rule to follow that, in Type IV infection, one should continue *the search for the infecting organism.* Every case of Type IV pneumonia should therefore have at least two type determinations, and in each case with sputum collected with the utmost care.

As regards the dilution of serums used in the agglutination or precipitin reactions, it may first be stated that Types I, II and III serums may be used undiluted. It is, in fact, advisable to use Type I serum undiluted, because for therapeutic purposes it is all important that no false negatives be obtained from the use of too dilute serum. Such instances have been known to occur, and are explained by the fact that the particular batch of serum used was unusually low in agglutinins. In using undiluted Type I serum there is no danger of obtaining a false positive reaction from action on a Type II, III or IV organism. The same statement holds true for the other two types of serum.

In order, however, to economize in the use of serum, it is well to dilute when possible. It is considered safe to dilute the Type I and Type II serums 1:10, and the Type III serum 1:5 before using. No greater quantities of diluted serum than enough for three days should be made up at one time on account of the danger of contamination. Dilution should be made in sterile physiologic sodium chlorid solution, and the serum must be kept cold.

In the grouping as it is determined in the base hospitals, it is well to set up three tubes of pneumococcus culture in agglutination tubes, into the first of which is placed Type I serum, undiluted or diluted 1:10, as preferred, into the second Type II serum, undiluted, and into the third Type III serum, diluted 1:5. By using Type II undiluted, the atypical Type II organisms will also be recognized, and these may be distinguished from straight Type II organisms by subsequent incubation of a fresh sputum culture with Type II serum diluted 1:10. If the reaction is positive with the diluted serum, the infection is with the straight Type II organism. It has been found to be a saving of both time and serum thus to resort to diluted Type II serum only when the reaction was positive with the undiluted serum.

If the test tube stands, made from a block of 2 by 4 inch wood, as previously described, have three rows of holes drilled into them, the cross rows of three holes each will be such that each cross row serves for one patient's sputum, with serums of Types I, II and III in the row.

Only one additional point requires mention. If the infection should be with a streptococcus instead of with a pneumococcus, the streptococcus will be found in the smear from the six-hour culture. Here also it would be most important to obtain uncontaminated sputum. Otherwise the culture might show a large number of mouth pneumococci. If the infection is with a hemolytic streptococcus, hemolysis of the red cells in the culture medium will occur. This diffuse reddening of the fluid which is not otherwise the rule is of a diagnostic value. Occasionally in a pneumococcic infection the pneumococci will grow out in chains of diplococci, in the culture, and to a cursory examination it would appear as a streptococcus infection.

If possible, the determination of pneumococcus type by this rapid method should be controlled by agglutination reactions on pure cultures of the organism. Pure cultures may be made from smears of the six-hour blood-glucose-broth culture on glucose-blood-agar plates. If this is done, differentiation of the Type II organism from the atypical Type II may be accomplished with the pure culture, thereby eliminating the necessity of making a second sputum culture in cases showing agglutination or precipitation with undiluted Type II serum.

A blood culture should be made in every pneumonia case soon after entrance of the patient to the hospital, and if a pneumococcus growth be obtained, agglutination tests, and if time permits, further identification tests should be performed on the pure culture.

Precipitin tests on an admission specimen of the patient's urine, both unconcentrated and concentrated, may also be performed in the manner described by Blake.

Patent Medicines—Why?—At a time when additional revenue is imperatively needed, why do patent medicines escape a fair share of the burden? In the estimated returns from the new war tax bill these are credited with a contribution of only $3,000,000, while cigars, cigarettes and tobacco are expected to bring in $55,000,000, fermented liquors $45,000,000, soft drinks $14,000,000, and wines $10,000,000. It is not a sufficient answer to say that these other things are luxuries—that is only partially true, at best. Nor can it be argued, on the other hand, that these patent medicines are necessities; that again is only partially true. For, although some of them serve a useful purpose, by far the greater number are injurious. They either do not cure the complaints for which they are recommended or they bring on others. It is notorious that some widely sold compounds contain a high percentage of alcohol, and that their "tonic" effect is the result of the alcohol in them, not of the other ingredients. Their large sale in "dry" territory is proof enough that they are largely used as substitutes for undisguised spirits, and often do more harm. The world would be much better off if most of them were taxed out of existence.—*Philadelphia Ledger.*

to instruct one nurse or ward master in each ward, and to hold her or him responsible for proper collection. If a pneumonia patient finds it impossible to raise sputum while lying on his back, he can often be made to cough while lying on his unaffected side, and a fit of coughing once started usually terminates in the expulsion of one mass of sputum entirely sufficient in amount for the laboratory examination.

The laboratory worker should be instructed never to accept a sputum specimen that is contaminated with saliva.

In order to free the collected sputum from contaminating mouth organisms, especially from the Type IV pneumococcus, which is so frequently present in the normal saliva, Avery recommends washing the specimen in two or three changes of sterile saline solution and subsequently grinding it in a sterile mortar to liberate the infecting organism from the interior of the pellet of sputum, previous to incubation. We have insisted on this washing in sterile salt solution; but since sterile mortars are not numerous in the equipment of a base hospital laboratory, we have replaced the latter procedure by thorough agitation of the sputum in the culture medium, with wooden applicators as previously described. By this method the sputum may be quite efficiently broken up.

It must be emphasized that a report of Type IV pneumococcus infection is a negative report. It is analogous to a report of "nothing found." In every Type IV pneumococcus report there is the possibility of salivary contamination, and it is a good rule to follow that, in Type IV infection, one should continue the search for the infecting organism. Every case of Type IV pneumonia should therefore have at least two type determinations, and in each case with sputum collected with the utmost care.

As regards the dilution of serums used in the agglutination or precipitin reactions, it may first be stated that Types I, II and III serums may be used undiluted. It is, in fact, advisable to use Type I serum undiluted, because for therapeutic purposes it is all important that no false negatives be obtained from the use of too dilute serum. Such instances have been known to occur, and are explained by the fact that the particular batch of serum used was unusually low in agglutinins. In using undiluted Type I serum there is no danger of obtaining a false positive reaction from action on a Type II, III or IV organism. The same statement holds true for the other two types of serum.

In order, however, to economize in the use of serum, it is well to dilute when possible. It is considered safe to dilute the Type I and Type II serums 1:10, and the Type III serum 1:5 before using. No greater quantities of diluted serum than enough for three days should be made up at one time on account of the danger of contamination. Dilution should be made in sterile physiologic sodium chlorid solution, and the serum must be kept cold.

In the grouping as it is determined in the base hospitals, it is well to set up three tubes of pneumococcus culture in agglutination tubes, into the first of which is placed Type I serum, undiluted or diluted 1:10, as preferred, into the second Type II serum, undiluted, and into the third Type III serum, diluted 1:5. By using Type II undiluted, the atypical Type II organisms will also be recognized, and these may be distinguished from straight Type II organisms by subsequent incubation of a fresh sputum culture with Type II serum diluted 1:10. If the reaction is positive with the diluted serum, the infection is with the straight Type II organism. It has been found to be a saving of both time and serum thus to resort to diluted Type II serum only when the reaction was positive with the undiluted serum.

If the test tube stands, made from a block of 2 by 4 inch wood, as previously described, have three rows of holes drilled into them, the cross rows of three holes each will be such that each cross row serves for one patient's sputum, with serums of Types I, II and III in the row.

Only one additional point requires mention. If the infection should be with a streptococcus instead of with a pneumococcus, the streptococcus will be found in the smear from the six-hour culture. Here also it would be most important to obtain uncontaminated sputum. Otherwise the culture might show a large number of mouth pneumococci. If the infection is with a hemolytic streptococcus, hemolysis of the red cells in the culture medium will occur. This diffuse reddening of the fluid which is not otherwise the rule is of a diagnostic value. Occasionally in a pneumococcic infection the pneumococci will grow out in chains of diplococci, in the culture, and to a cursory examination it would appear as a streptococcus infection.

If possible, the determination of pneumococcus type by this rapid method should be controlled by agglutination reactions on pure cultures of the organism. Pure cultures may be made from smears of the six-hour blood-glucose-broth culture on glucose-blood-agar plates. If this is done, differentiation of the Type II organism from the atypical Type II may be accomplished with the pure culture, thereby eliminating the necessity of making a second sputum culture in cases showing agglutination or precipitation with undiluted Type II serum.

A blood culture should be made in every pneumonia case soon after entrance of the patient to the hospital, and if a pneumococcus growth be obtained, agglutination tests, and if time permits, further identification tests should be performed on the pure culture.

Precipitin tests on an admission specimen of the patient's urine, both unconcentrated and concentrated, may also be performed in the manner described by Blake.

Patent Medicines—Why?—At a time when additional revenue is imperatively needed, why do patent medicines escape a fair share of the burden? In the estimated returns from the new war tax bill these are credited with a contribution of only $3,000,000, while cigars, cigarettes and tobacco are expected to bring in $55,000,000, fermented liquors $45,000,000, soft drinks $14,000,000, and wines $10,000,000. It is not a sufficient answer to say that these other things are luxuries—that is only partially true, at best. Nor can it be argued, on the other hand, that these patent medicines are necessities; that again is only partially true. For, although some of them serve a useful purpose, by far the greater number are injurious. They either do not cure the complaints for which they are recommended or [illegible] others. It is notorious that some widely s contain a high percentage of alcohol, and that effect is the result of the alcohol in them, not ingredients. Their large sale in "dry" territ enough that they are largely used as substitu guised spirits, and often do more harm. Th be much better off if most of them were tax tence.—*Philadelphia Ledger.*

psychosis which, in one place, was called dementia praecox, and in another, manic depressive insanity. There is very little room for doubt that the make-up of the patient, as described above, determined the nature of her psychotic reactions, and that the syphilitic infection merely decided the location of the irritative and destructive processes in the brain, which were responsible for the physical signs that played so small a part in her disease.

Besides illustrating this point, the case is of interest in other ways, because it illustrates the existence of conjugal paresis. The shiftless, dull, inefficient husband, always mentally below par, was committed to the Kings Park State Hospital suffering from general paresis. I saw him on a number of occasions; but at no time before his commitment, or since, has he been the victim of delusional trends, hallucinatory episodes, euphoria, or alternating periods of either depression or excitement. He has deteriorated slowly but progressively, has presented all the usual signs of paresis, and is now grossly demented, incontinent and helpless. The onset in this individual must have been exceedingly insidious, because not until he became so extremely stupid as to be helpless was it considered that he might be ill. It seems that he emerged [illegible] his ordinary normal, dull, inefficient state into a gradu[illegible]reasing dementia, progressively and without incident. [illegible]ustrates the type of paresis which I would call the [illegible]al, as against the psychotic type.

Case 2.—A. L., a man, aged 29, married, was a brilliant musician who played for some of the best musical organizations in this country. His wife, a talented woman, had known him since he was a boy. He was always considered nervous, sensitive and timid, was inclined to be seclusive, and made very few friends. He was always restless and, outside of his musical ability, was wholly inefficient, depending on his wife to manage his affairs. His psychosis began suddenly about a year before he was first seen by me. He awoke one night exclaiming to his wife that he had seen a fearful vision in which a great number of soldiers were approaching him, threatening to do him harm. He said that streams of water seemed to be coming out of his body. He was very fearful and apprehensive, and feared the same death as his father. The latter, an officer in the Italian army, had died from a violent attack of insanity which was characterized by great excitement and lasted only several months, and which was said to have been due to syphilis of the brain. The patient had always had a horrible fear of insanity, and in the beginning of his trouble, gave expression to this fear continually. He slept poorly. After a few days he became much calmer, continued his musical duties, giving lessons to various pupils, and again assumed his place in the orchestra in which he was employed. It was noticed, however, that he gradually became less efficient as a musician, and in the midst of an important operatic engagement his services were dispensed with because he frequently caused disharmony through his mistakes. Immediately after his discharge, he exhibited delusional trends toward a famous singer whom he blamed for his dismissal. At the time I saw the patient, his thought content was full of ideas against this person, who, he said, had left no means unturned to humiliate him, going so far as to conspire with several of his co-workers to make it appear that his work was no longer satisfactory. This patient began to go to pieces rapidly, and one day ran away from home, jumped into a taxicab and rode around for hours, saying that he was a nephew of the king of Italy and a cousin to Caruso, and finally becoming so disturbed that he was taken to Bellevue Hospital. Here he was restless, euphoric and incoherent, and gave expression to a number of delusions against the singer whom he blamed for all his troubles. A sample of his stream of thought follows:

> I saved my wife from the cruelties of a famous singer; then I married her. Many women are in love with me. My father was also a wonderful musician like me and was an officer in the Eighty-First Cavalry in Italy. As a result of an attack of progressive paralysis which affected his mind, a wonderfully f[illegible]n was lost to the world. I, too, am a wonderful musician [illegible] an operatic masterpiece entitled "Boorei," which I have ded[illegible]riend Caruso. He and Botti are to si[illegible] a banquet [illegible] is banquet I [illegible] to have thirteen [illegible] Christ, an[illegible] singers [illegible] for me.

It was only during the last few months of this patient's illness that marked physical signs of paresis were observed, although the serum reaction was positive from the very beginning. Curiously enough, it was never possible in this case to obtain the history of a syphilitic infection. The wife, who was extremely devoted, refused even to think of the possibility that her husband had acquired the disease. It was her idea (and she may possibly have been right) that he had suffered a hereditary infection. I have nothing but the wife's word that his father had died from general paresis. It should not require much argument to convince one that the sensitive, seclusive, neurotic make-up of the patient predetermined the early praecox-like reaction. He is now at the Central Islip State Hospital.

Case 3.—N. M., a man, aged 34, married, an electrotyper, seen first, July 4, 1917, with his family physician, had been restless, talkative and quarrelsome, had felt too good, and had made numerous useless and extravagant expenditures for the past month. He had talked about going into business with millionaires and building million dollar hotels. In keeping with these grandiose ideas, he had been riding around in taxicabs, and ordering $10 and $12 silk shirts and other equally expensive apparel which he not only could not afford but did not need. He had been treated neither continually nor sufficiently for syphilis ten years before. His family physician assured me that he had known the patient from boyhood. The patient's wife and sisters gave me the history that he had always been extremely jolly, energetic and of a good-natured, bluff, breezy disposition. He was always the life of any party which he joined, was continually cracking jokes, and always made his presence felt in any company. Since boyhood he had been noted as a quick, witty talker, being bright and fond of company. Accordingly when, about a month before I saw him, he began to enjoy himself a little more than usual and to talk extravagantly, very little was thought of the matter. In fact, he had nearly ruined his wife and family by spending the savings of years before any one stopped to think that there might be something wrong with him mentally. At the time I saw him, the pupillary reactions, even after careful and repeated examinations, were all normal. His superficial and deep reflexes were active and equal, but there was a distinct unsteadiness with the eyes closed and some tremor in the hands and face. The speech was not defective. He was committed to the Manhattan State Hospital for the Insane, and continues in his euphoric state.

Case 4.—J. S., a man, aged about 50, married, a leather merchant, had been a gambler and a "sport" all his life. His wife says that his first wife died from a broken heart because of his careless, profligate habits. He always made money easily, but was a spendtrift, although he did not drink. He never seemed content to stay home. He was restless, irritable, dissatisfied and fault-finding, slept poorly, and seemed to enjoy himself only when in the company of his boon companions. He would not even go to see his two children who lived within 20 or 30 miles of the city where he resided. In fact, until he became sick, he had seen neither of them for more than ten years. His children quarreled frequently with him about his habits, to no avail. His first symptoms were attacks of uncontrollable temper, great restlessness, and profound indifference. He soon became grossly inefficient, could not earn a living, and finally had to be committed because of his threats to kill either himself or his wife. The diagnosis in the case was confirmed by positive blood and spinal fluid examinations, as was the case with each of the foregoing patients. This patient also began to show somewhat rapid deterioration, grave defects of memory manifesting themselves almost from the beginning. The physical signs of paresis were present, but had been overlooked, the mental symptoms having evidently dominated the picture. The patient was sent to me from Wilmington, Del., for diagnosis, and is now in the State Hospital at Dover.

Case 5.—F. S., a man, aged 35, married, had a make-up characterized by shyness, seclusiveness and a tendency to alternate moods of depression and elation. For a number of years, he had been separated from his wife, who is in Italy, [illegible]d had often been found staring for hours at a picture of her and his children, apparently in a very much dejected attitude. During his work, he suffered a severe injury to his right leg. This happened about four months before the onset of his mental trouble. After this injury, his right knee became ankylosed, as a result of which he limped a great deal in walking. He was very sensitive about this, and felt keenly his misfortune. Soon after this injury, about three months before, he became extremely restless, cried a great deal, and talked about sending for his wife and children. He could not sleep at all at night, and finally became so disturbed, especially if annoyed, that he was considered dangerous and was taken to the Kings County Hospital. A letter from this institution describing a week's observation stated that he was there from July 17 to July 25, when he was discharged. The letter further says:

> He had no anomalies and he did not show anything mentally while here, except possibly an inadequate emotional reaction. He had some sort of excitement in one of the wards and was restrained, but he explained that he wanted to get up out of bed and that they did not understand what he wanted, so when he tried to get up he was restrained. His physical examination was negative here. The Wassermann test was negative. We did not take a spinal fluid. We discharged him as not insane.

I saw the patient for the first time, July 29, 1917. At this time he was extremely emotional and restless. He said that he was going to make a lot of money and was going to organize a mutual benefit and protective insurance society in order to better the conditions of his fellow workmen and, incidentally, was going to make himself and me immensely wealthy. The neurologic examination was still negative. The pupils reacted well to light and accommodation. All superficial and deep reflexes were equal and active, and there was no clonus, no Babinski nor Rhomberg sign, but the speech was slightly defective and there was some tremor in the face and tongue. A Wassermann test taken at this time was positive, as was also the spinal fluid taken on the occasion of the patient's second visit to the Kings County Hospital and at the Kings Park State Hospital, where he now is. Here again we have a sudden onset in general paresis in which the disease shows no paresis at all. At least none of the physical signs of general paresis became apparent until long after the mental symptoms attested the presence of the psychosis.

Case 6.—H. M., a man, aged 54, single, when first seen, in July, 1916, showed no anomalies of behavior and suffered from no emotional defects, but was almost blind and greatly paretic. There was a distinct memory defect, particularly for recent events and dates, and retention was poor. But I have no doubt whatsoever that, if any attempt had been made at that time or even since to commit this patient, no judge would have signed the petition because there was not a single mental symptom except loss of memory. The patient's symptoms were almost entirely physical, and began with sexual impotence during the spring of 1914. This was followed by gradually failing vision, weakness in both legs, and a heavy, dead feeling throughout the body, together with considerable pain in both shoulders which had been diagnosed as rheumatism. He exhibited a coarse tremor in the face, tongue and hands, was markedly ataxic, and had a distinct Rhomberg sign, an Argyll Robertson pupil, and the thick, slurring elision speech characteristic of this condition. He also had a double optic neuritis. Intensive intraspinal and intravenous treatment was given after the diagnosis was serologically corroborated, with the following results: The patient is still outside an institution for the insane, but suffers from a double spastic condition in both legs. His sight has been restored, so that he is $^{20}/_{40}$ in the right eye and $^{20}/_{30}$ in the left. The optic neuritis has disappeared, as has also the Argyll Robertson pupil. Mentally the patient's condition has not changed at all since the first day he came under observation. He is being cared for in a general private hospital, is quiet and fairly well behaved, has no delusions nor hallucinatory experiences, and has exercised a very close supervision over his business affairs, paying his own bills and exhibiting considerable interest in a large business which is executively run by his brother. The patient has a double Babinski sign and a clonus in both the patellar and ankle tendons, showing marked destruction of the corticospinal tracts. If it were not for this, I believe that he could with safety take an active interest in his business affairs. His make-up was always considered normal. He was a highly respected, hard-working business man, and exhibited no peculiarities until the onset of his troubles These have consisted mainly of physical symptoms aside from the memory defects.

Case 7 - A. N., a woman, aged 38, married, had always been a hard-working, efficient, capable housewife of a sociable type, always reliable until two years before I saw her, Aug. 5, 1916 She began with trembling of the hands and a rather acute enlargement of both the lateral lobes of the thyroid. Her face became flushed and she developed palpitation of the heart and a marked exophthalmos, with spells of excitement and depression which were designated as hysterical. She became fearful and apprehensive, would not let her husband leave her, and cried when he left her in the morning to go to work. She was treated for exophthalmic goiter, but instead of improving became gradually worse. After a few months' treatment she began to deteriorate quickly, smiled foolishly, became talkative, good natured and silly, ate ravenously, and would sleep for twelve or thirteen hours at a stretch. The dementia in this case came on very rapidly. When I saw her she was perseverating, her speech was unintelligible, and she was disorientated for time, place and persons. She had a distinct Argyll Robertson pupil, irregular and unequal tendon reflexes, a positive Rhomberg sign, etc. It is very evident that the symptoms in the early part of this patient's trouble were determined entirely, or in a great part, by the evidences of hyperthyroidism that dominated the picture.

Case 8.—This case is of interest because of the possibility of the existence of a hereditary condition, in which respect it is exactly like the second case. The patient's father is definitely known to have died from paresis, because I have seen the correspondence between the patient's family physician and the superintendent of the insane asylum, in which Bianci wrote the diagnosis of the father's condition. F. M., a man, aged 29, single, a hatter, seven or eight years before I saw him, June 1, 1916, began to have convulsions. These attacks came on at first every few months, and later three or four times a week. They lasted for a half hour or more, and were either preceded or followed by attacks of pain in the head, loss of speech, and episodes of excitement, fear and apprehension. Seven or eight weeks before he began to show grave defects of memory, he became mildly euphoric, menacing, assaultive and finally very threatening. The patient's sister is a morphin addict, and a younger sister is affected with dwarfism and imbecility. The older sister has a positive Wassermann test and an Argyll Robertson pupil. She is extremely emotional, but efficient and a good dressmaker, although she has to rest frequently because "of her nerves." According to the mother, who is the only one in this family that can be trusted to give a reliable history, the patient was always headstrong, impetuous and excitable, and on several occasions had got into trouble with the authorities. As it was impossible to keep him at home, he was committed to the Central Islip State Hospital, where the diagnosis was confirmed serologically and where he was one of the most troublesome patients in a disturbed ward. He died recently, but during his residence in the hospital he showed the most prolonged and sustained period of excitement I have ever seen in a case of general paresis.

Case 9.—L. D. L., a man, aged 38, married, seen Aug. 17, 1916, was a familiar type of a very amusing nature. He was a "sporty," flashy Italian barber, talkative, fond of the opera, sure to attend any sporting event, and addicted to cards and the race track. In fact, he was fond of everything except his business, his wife and his family. In his own home he was a brute and a miser; outside it, he was a liberal hail fellow well met. Sixteen years ago, his wife said, he contracted syphilis and was very careful to receive prolonged, intensive and persistent treatment for three years, after which he was declared cured. A year before I saw him, he had wagered his barber shop, which the wife was running and which possessed considerable value, in a poker game. The wife thought that her husband's peculiarities had developed a little beyond the normal, and asked the family physician for advice. When I saw the patient, he was frankly affected with general paresis, and was restless and euphoric with all the physical signs, namely, an Argyll Robertson pupil, ataxia, tremor, defect of speech, etc. He became so annoying that he had to be committed to the Central Islip State Hospital, and the diagnosis was confirmed by positive blood and spinal fluid examinations, at that institution, where he died two months ago.

Case 10.—S. D., a man, aged 46, died in the institution for the insane at Overbrook, N. J., within three months after I saw him. He was a common day laborer of low mentality, with no more than the average intelligence and education for one of his station, and he undoubtedly had had his disease for a long time before it was considered necessary to ask medical advice. His mental symptoms consisted entirely of memory and retention defects. There were no delusional trends and no hallucinatory experiences, no excitements, and no depressions of any importance. Physically, all the symptoms were exceedingly well marked, including the Argyll Robertson pupil and the ataxia, and signs of the pyramidal ract destruction as shown by exaggerated tendon reflexes. The Babinski reflex, the clonus, etc., were all present. Soon after admission to the institution, the patient began to lose control of his bladder and rectal functions, and died greatly emaciated. The diagnosis was confirmed by a positive serum reaction. The patient's personality was normal for one of his class, which was that of the ordinary, average Italian day laborer.

Case 11.—E. A., a man, aged 37, single, had four brothers who run a large wholesale grocery business in New York and have been highly successful business men. They told me that since the patient was 15 or 16 years of age he had practically always been a burden to them and a source of constant worry and despair. When he worked at all, he worked for them. He was unreliable, dull, indifferent and ungrateful, but usually so good natured and amusing that they never really lost patience with him. He would say flippant and silly things, and always took life as a huge joke. He was certainly an inferior, if not distinctly a pathologic type. During the past five or six years, the patient's brothers informed me, he had become more dull and stupid, could not be trusted to perform even little errands, had stolen small sums of money and then laughed about it when he was accused, could not make change of small denominations over the counter, and finally had become so grossly inefficient that they had sought medical advice. April 18, 1917, when the patient was brought to me, he presented all the physical signs of paresis greatly marked, together with profound defects of memory, perseveration, echolalia, profound emotional and intellectual dulling, and a severe, restless euphoria with considerable excitement. After the diagnosis was confirmed by means of the blood and spinal fluid Wassermann test, he was committed to the Manhattan State Hospital, remained there about three months, was taken home, and died a few days later.

Case 12.—M. D., a man, aged 34, has a peculiar personal interest for me. He was a boyhood friend, was always very quiet, timid and reserved, and out of a large class of boys made friends with only two, another comrade and myself. He was extremely sensitive to ridicule, and the other members of the class who knew of this goaded him so that he was compelled to fight them in order to get some peace. The three of us were very friendly, however, The other comrade and I understood his exquisitely sensitive nature so well that we never chided him, and so got along with him very well. He seemed always to be thinking of something, and very often conversation addressed to him found him uninterested and at times absolutely unheeding. Gradually I lost sight of him; but he followed a mechanical bent, and became a successful electrotype engraver. He commanded a very large salary, and I always understood that his services were much sought after. He continued his friendship with this other comrade, and I saw him only occasionally. His general characteristics had not changed. He was still shy, sensitive, and given to moments of abstraction and day dreaming. One day about five years ago, I met him and was informed that he had married. A few weeks later, I met our mutual friend, who informed me that the patient had married a disreputable woman and was making a reputation for careless spending and unusual sociability that was quite surprising. Married life for him, however, was not successful, and at the end of a year and a half of difficult family situations, he secured a divorce from his wife and began drinking. He drank rather heavily for several years, I was given to understand, and then quit suddenly. A few weeks after he quit his alcoholic indulgence, he began to give expression to various delusions of persecution by members of his family. He accused his father and mother of ruining his life and of foisting an unfaithful woman on him as his wife. He accused his brother of stealing his good name and of being unduly familiar with his former wife. He became suspicious that his food was being tampered with and finally became extremely excited, assaultive and threatening, yelling, particularly at night, at the top of his voice. The family sent for me, and I saw him with the physician who had treated him, and every one was shocked when I suggested that his condition was paresis. The diagnosis was confirmed, however, by a positive serum reaction, and because of the extreme emotional unrest, he was removed to Dr. Barnes' sanatorium at Stamford, Conn. If the other case mentioned above was unusual for the protraction and severity of continuous excitement, this one was unique for the intense episode of excitement that followed. Despite powerful sedatives, this patient did not sleep a wink at the sanatorium for three weeks. In reaction to his delusions, he yelled continuously, shouting defiance to his enemies and fighting to be allowed to get at them. Finally the authorities at the sanatorium refused to keep him on account of his disturbed condition, and he was brought back to New York and committed to the Central Islip State Hospital for the Insane. He deteriorated rapidly, however, at the latter institution and died a few months after the diagnosis was made. Even by us as boys, he was recognized as peculiar, and several who remembered him when they heard of his death said they were not surprised that he died from some mental disorder, because they had always thought there was something wrong with his mind.

COMMENT

In presenting these cases, it is not my object to formulate a proposition that any particular type or types of individual are prone, granted first the presence of the syphilitic infection, to develop paresis. It seems, nevertheless, to have been amply demonstrated in these cases, first, that individuals possessing unusual, abnormal personalities are more apt than those of normal personality to develop paresis, and second, that after the development of this disease, the mental symptoms of paresis in these patients dominate the situation to the practical exclusion of physical symptoms. At least, putting it in another way, I may say that when patients possessed of neurotic, seclusive or emotionally unstable personalities develop general paresis, they are apt to exhibit themselves in their psychoses as florid, euphoric, emotional types. Recognition of this fact, it seems to me, is important because it indicates a measure of prophylaxis that should be taken in all our syphilitic patients who possess abnormalities of personality. Any patient of this type who comes to the general practitioner with syphilis should be observed carefully and continuously. Even more than any other individual suffering from syphilis, he should receive intensive and repeated antisyphilitic treatments. These patients should have examinations of their spinal fluid made from time to time, and every safeguard of a prophylactic nature now within our power should be used against the development of paresis. Thus it may be possible that in the future the 3 per cent. of all syphilitics who have heretofore developed paresis will be spared the agony and the unfortunate ending that almost invariably accompany this disease.

SUMMARY

In eleven out of the twenty-five undoubted cases of general paresis reported in the original study, the influence of the individual's make-up on the character of the reaction observed is conclusively shown. These were dispensary patients, about whom it was not always possible to obtain information as reliable and detailed as that obtained in the twelve cases reported in this article.

Each one of the twelve cases is also undoubtedly one of general paresis, the diagnosis being confirmed by blood and spinal fluid examinations. In nine of these cases, the influence of the personality in determining the character of the psychotic reaction is conclusively shown. The other three, namely, the husband of Patient 1, Patient 6 and Patient 10, also undoubtedly had general paresis, but the patients seem to have been normal before the inception of their disease, as far as their make-up could be determined.

Grouping these thirty-seven cases, I find that in twenty of them it was possible to demonstrate my contention that paresis of the psychotic type occurs as a general rule in persons possessing abnormalities of make-up.

In seventeen cases in which it was impossible to demonstrate this point, the paresis existed mainly as a physical disease, the physical signs of this condition being dominant.

In neurotic persons infected with syphilis, the period of observation and treatment must be indefinitely prolonged because it is fairly evident that paresis occurs by preference in persons of this type.

I do not like to leave the subject without making reference to the work of Reasoner, Noguchi and Nichols with various strains of syphilitic organisms as a result of which they seem to have proved conclusively that certain strains have a predilection for infecting the nervous system. Reasoner[2] states, however, in his sixteenth conclusion, that "Granting that there are strains or types of syphilis, differing in invasiveness or predilection for certain tissues, and having in mind more especially the nervous tissues, the individual resistance of the infected person must still be considered as a possible factor in the development of the disease." It would appear, therefore, that the investigation which we have made and which seems to show the great influence the individual's make-up has on the character and development of paresis can be interpreted as being "the individual resistance of the infected person." Although it is hardly fair to call into evidence the illustration of a single case in support of my contention, nevertheless, the opportunity is taken of calling again on my first case in this report in which both the wife and husband are infected with paresis. The husband was undoubtedly the first infected. If it is taken for granted that he infected the wife with his own particular strain of syphilitic organism, is it not rather peculiar that she did not show the same sort of reaction that he did? This case tends to illustrate the point made by the investigators mentioned, namely, the existence of specific strains of spirochetes which have the peculiar power of causing nervous syphilis. It also particularly well illustrates the point I wish to make, namely, that, given the presence of syphilitic infection in two persons, and especially of a specific nervous system strain of syphilitic organisms, it is still possible that the character of their mental reactions may differ markedly, despite the fact that they may develop paresis, for instance. Whether this difference is explained by Reasoner's phrase "the individual resistance of the infected person," or by the conception of Adler of organ inferiority, it is difficult at this time even to speculate. Particularly would it be unwise to draw conclusions of a definite character in view of the statement of Weygandt and Jakob[3] who, as well as Reasoner, worked with rabbits:

> We also found that the animals infected with the same strain in some cases developed nervous syphilis and in some cases did not. This militates strongly against the theory of "virus nerveaux."

270 West Eighty-Ninth Street.

BILHARZIASIS IN SOUTH AFRICA

F. G. CAWSTON, M.D. (Cantab.), M.R.C.S. (Eng.)
MILITARY HOSPITAL, POTCHEFSTROOM, TRANSVAAL

In certain parts of South Africa a varying proportion of the population suffers from hematuria, caused by the presence in the urine of numerous spine-pointed eggs. The condition is due to a trematode worm, *Schistosoma*, which inhabits the blood-vessels of the bladder and portal system. It is especially prevalent among the school children of the low veldt, and careful analysis of certain schools has shown that 80 per cent. of the boys and one in ten of the girls are infected.

Many of the young persons who harbor the *Bilharzia* worm complain of no other sympton than that of hematuria; but in most instances this is remarkably protracted and, when the more obvious signs of the disease have disappeared for many years, ova may still be present in the urine. In the severer forms of the disease patients complain of constant or occasional aching pains in the back, pain on micturition, and renal colic. Severe exacerbations of the symptoms are noticeable in many instances. In some schools anemia, general malaise and backwardness among the pupils who are bilharziatics are very noticeable.

For many years the disease was attributed to bathing in infected rivers and stagnant pools, but the cercariae which caused it were not known. In June, 1915, Dr. E. Warren of the Natal Museum at Pietermaritzburg drew my attention to some cercariae which had developed in specimens of a common fresh-water snail, *Physopsis africana,* which had been exposed to infection from the urine of a patient of mine who was suffering from *Bilharzia* disease. These cercariae were similar to those which Drs. Leiper and Atkinson[1] had described as causing Asiatic schistosomiasis, and the description of them[2] proved to be the first that had been published in Africa. During the next few months I collected several hundred specimens of this snail from various parts of Natal which were known to be heavily infected with *Bilharzia* disease. In some pools I found *Bilharzia cercariae* in 10 per cent. of the specimens I examined. Though I examined an equal number of other species of snail from these same pools, I failed to procure *Bilharzia* cercariae from any other snail than *Physopsis.* At the same time I attempted to infect with urine from a *Bilharzia* patient numerous specimens of the commoner species of snail. I failed to produce infection in any other than *Physopsis*,[3] but, in dealing with specimens of the latter snail, which I obtained from infected rivers, I demonstrated a distinct increase of infected specimens in those I had exposed to possible infection by miracidia hatching out of ova from the urine of an infected person.

---

[2] Reasoner, M. A.: Some Phases of Experimental Syphilis, The Journal A. M. A., Dec. 16, 1916, p. 1799.

[3] Weygandt, W., and Jakob, A.: Warum werden Syphilitiker nervenkrank? Dermat. Wchnschr., 1914, 18, 150 (quoted by Reasoner).

[1] Leiper, R. T., and Atkinson, E. L.: Brit. Med. Jour., 19 1, 201.

[2] Watkins-Pitchford: Med. Jour. S. Africa, July, 1915.

In October, 1916, Becker[4] reported that he had found three adult schistosomes in the portal vein of a guinea-pig to which he had given a hypodermic injection of cercariae from *Physopsis* six months previously. These cercariae, which he had obtained from Nijlstroom in the Transvaal, were similar to those I had found at Durban and Maritzburg in Natal.

I have found cercariae answering to the description of the schistosome group, in possessing a divided tail and showing an absence of esophagus, in 102 specimens of *Physopsis* I have had the opportunity of examining from various parts of Natal and the Transvaal. Some of these cercariae have the appearance of avian trematodes and are common in specimens collected from the Umsindusi River at Maritzburg. I have found a cercaria similar to that for which I have suggested the name *C. secobii*, in a specimen of *Isidora schakoi* Jick, from a pool at Potchefstroom in the Transvaal. On one occasion I came across an eye-spotted furcocercous cercaria[5] in a sporocyst developing in one of the snails I had collected from the brickfields at Durban. The cercaria which produced the *Bilharzia* worm in Dr. Becker's guinea-pig is from 0.5 to 0.6 mm. in length, the tail is divided into two prongs for about a quarter of its length, and the alimentary canal of its body, which runs backwards from the oral sucker, bifurcates into two, just anterior to the ventral sucker. This cercaria, like all furocercous forms, swims backwards. I have found it in twenty-three specimens of *Physopsis* at the Durban brickfields, or 14 per cent., and in infected specimens at Maritzburg, Rustenburg, Magaliesburg and Mulder's Drift — all areas infected with *Bilharzia*.

The Crocodile River is one of the longest in South Africa, and is known to carry the infection. I have found several small pools near its source where *Physopsis* is particularly abundant[6] and where its eggs are continually being washed downstream. I have also come across pools close to the source of the river where numbers of *Bilharzia* carriers are continually bathing and using urinals close to the river bank, and have suggested the use of cyanid of lime to destroy the snails in these pools and by-laws to prevent persons who are suffering from this disease from bathing in the open or defecating close to the streams. A great deal has been done to assist in the eradication of *Bilharzia* disease in South Africa, by warning schoolchildren of the danger of bathing in infected rivers. Recently active measures have been taken by the educational authorities of Natal and the Transvaal, and some definite results have been achieved. These measures have included the use of disinfectants in the urinals of infected schools, thus helping to destroy the eggs before they reach fresh water, where they rapidly hatch on a warm day; and the encouragement of sea bathing or the use of rain water baths instead of river swimming. Much more could be done by the public health authorities to remove the decomposing reeds from stagnant water, fill in unnecessary pools, and enforce suitable by-laws. As the disease exists in certain well defined areas in various parts of the Union, it is surprising that more active measures to eradicate a disease of such importance have not yet been taken.

So far, we have not been able to determine how this cercaria of South African rivers, which develops in a common fresh-water snail, enters the human subject, but from the observations of scientific observers in Japan,[7] Egypt[8] and Venezuela[9] there can be no doubt that the cercaria may enter any part of the body of a person who bathes or even wades in infected streams, and that the cercaria may penetrate the lining of the mouth of anyone imbibing water containing it. Having found their way to the portal system, these trematodes, which have now lost their tail, grow to be from a half to three quarters of an inch in length. After some years they often die out without treatment, but I have met persons who have manifested symptoms of the disease for many years, though they have, as far as possible, avoided the possibility of fresh infection.

Among the many drugs that have been advocated in the treatment of *Bilharzia* disease, hexamethylenamin is probably the most effective.[10] I myself prefer to combine its use with buchu. Sodium salicylate is also of service, especially when there are pain and renal colic. Some persons have advocated the use of benzoic acid; but any of the drugs that have been suggested with the object of destroying the parasite in the blood stream would seem to be equally unavailing. Rest and a light diet often result in improvement without drug treatment, but the symptoms are only too likely to recur. The disease may often die out without treatment of any kind. In all cases in which there are obvious symptoms I recommend hexamethylenamin, combined with other forms of treatment, and, when there is much pain, hyoscyamus is indicated, or sometimes morphin. Many cases show every indication of renal calculus when none exists, and, generally speaking, operative treatment is better avoided in the treatment of *Bilharzia* disease. The ova have been found in the lungs, the liver, the appendix and other parts; but it would appear that they cause symptoms only when they accumulate in the kidney or bladder and form gravel or stone, or as they escape through the bladder wall, where they give rise to a varying amount of hemorrhage and thickening of the bladder wall. At one time it was a common practice to wash out the bladder of these patients, but such treatment would seem only to aggravate the complaint and increase the tendency to bacilluria, which is common in severe cases. Arsphenamin (salvarsan), santonin, thymol, male fern and methylene blue have all been tried; but, so far, we know of no more effective remedies than those that are usually prescribed as urinary antiseptics.

The urine of a *Bilharzia* patient usually contains a considerable amount of blood and a certain amount of mucus. The ova vary in size in the same specimen of urine; the average size of a fairly well developed ovum in the Transvaal or Natal is 0.15 mm. in length and 0.0625 mm. in breadth. The terminal spine of the shell is 0.125 mm. long. When a drop of warm water is added to the drop of urine on a microscopic slide in a good light, movement is soon detected in the shell of the egg, and a ciliated embryo, called the *miracidium*, escapes through the ruptured shell. This miracidium, which is covered with cilia except at its head end, is 0.1125 mm. in length and 0.065 mm. in breadth. These free-swimming organisms attack any specimens of *Physopsis* in the water and, burrowing their way to the liver substance, form sporocysts, producing daughter-sporocysts by budding and cercariae by division. I have never seen any sign of redia formation in snails containing *Bilharzia* cercariae in South Africa, though I have seen a furcocercous cercaria with the appearance of an avian trematode, developing in typical rediae. At the end of three weeks these cercariae are fully developed and ready to attack man. Neither the miracidium nor the cercariae it produces in the substance of the fresh-water snail can live as free-swimming organisms for more than a few hours, and it is very hard to procure satisfactory microscopic preparations of either.

---

[3] Cawston, F. G.: Lancet, London, 1915, **2**, 1427; ibid., 1916, **2**, 121.

[4] Becker, J. G.: Med. Jour. S. Africa, October, 1916.

[5] Cawston, F. G.: Jour. Parasitol., 1917, **3**, 131.

[6] Cawston, F. G.: South African Med. Rec., Oct. 27, 1917.

[7] Mills: China Med. Jour., Review of Recent Japanese Literature, 1917.

[8] Leiper, R. T.: Proc. Roy. Soc. Med., 1916.

[9] Iturbe: The Intermediary Host of Schistosomum *Mansoni* in Venezuela, 1916.

[10] Cawston, F. G.: Brit. Med. Jour., 1915, **2**, 746; ibid., 1916, **2**, 1[illegible].

These observations help to confirm the conclusions arrived at by independent investigators in other parts of the world. Work of this kind covers a remarkably large field, and the ground covered by those who have been investigating this subject in Egypt will be remembered as one of the achievements of science during the present war, though we are primarily indebted to the Japanese for the very brilliant piece of work they have done in elucidating the life cycle of the *Bilharzia* parasite of man.

RECURRENCE OF URINARY OBSTRUCTION AFTER PROSTATECTOMY

F. M. DENSLOW, M.D.
Fellow of the American College of Surgeons
KANSAS CITY, MO.

In the past few months I have had occasion to reoperate in five cases of prostatic obstruction in which a suprapubic prostatectomy had previously been done.

One of these cases was one in which I, myself, had operated. The other operations had been done by men of experience in Kansas City and elsewhere. In two of the cases I assisted the original operator to correct the secondary obstruction.

The usual history of these patients was of their having made a good recovery from the operation, of having left the hospital in good condition in from four to six weeks, voiding urine well and being apparently cured. From that time on, the size of the stream would progressively diminish, and it would become more difficult to void. Finally the suprapubic wound would reopen and remain open, and the passage through the urethra become closed, or nearly so.

In the case in which I had done the original operation, the patient had been dilated with sounds up to 32 French, every few days up to the time of leaving the hospital. From after events and from experience with other cases, I am now convinced that the tip of the sound never entered the bladder, but that the beak could be rotated in the cavity of the prostate.

All five of the cases, with the exception of one in which a second operation had been performed previously without relief, presented the same general characteristics. In all of them the prostatic hypertrophy had been completely enucleated, and there was no tissue to be removed at the second operation.

To understand what had happened in these cases of secondary obstruction, it is necessary to review the pathologic anatomy of the hypertrophied prostate.

It has long been known, but yet is far from being universally known, that the word "prostatectomy," as generally used, is a misnomer. The work of Tandler and Zuckerkandl in Vienna, and Wilson and McGrath of the Mayo Clinic, has shown that the encroachment of the fibro-adenomatous growth in the prostate gland will crowd the surrounding normal prostatic tissue to the periphery, making of it the surgical capsule of the hypertrophied gland, containing also the ejaculatory ducts behind. This is the part of the gland that is normally left when a so-called prostatectomy is done.

When hypertrophy of the benign type has occurred, and more especially when the greater part of the enlargement is in the median lobe, the urethra is much elongated by reason of the protrusion of the mass through the sphincter vesicae and into the lumen of the bladder. The sphincter vesicae is stretched, but intact, as the growth pushes through it. This leaves the sphincter, not at the vesical orifice, as normally found, but somewhere at the outer side of the protruding mass.

In the cases under discussion, the prostatic hypertrophy had been enucleated without wounding the sphincter. The sphincter had then regained its tone and had come together, forming a sort of tympanum above the cavity of enucleation, and between it and the cavity of the bladder.

On opening the bladder in one of these cases, one finds the vesical orifice represented by a mere dimple on the internal surface of the bladder. With a sound in the urethra it is often quite difficult to push the tip through the opening, even with the aid of a finger in the bladder. The cavity below is frequently of such a size that a short-beaked sound may be rotated within it. The lower segment of the bladder, being drawn up by the contraction of the sphincter, has made no attachment to the lateral walls of the cavity of the prostate, nor any attempt to approximate the mucous membrane of the bladder to that of the cut urethra near the apex of the gland.

The questions arise why all prostatic enucleations are not followed by this result, and what the remedy is for it.

The reason it does not happen in every case is that the traumatism ordinarily incident to enucleation is sufficient to prevent the restoration of the sphincter until the lower bladder segment has become adherent in the prostatic cavity and its mucosa is becoming coapted to that of the urethra. This traumatism, while usually inadvertent, has thus served a good purpose.

The way to prevent this very undesirable sequel to an otherwise successful operation is, therefore, intentionally to divide the sphincter vesicae at the time of operation, preferably at the lower margin, and not to try to do a purely urethral enucleation, leaving the sphincter intact.

The remedy for the condition at secondary operation is the same, namely, to divide the sphincter. This division should be to the under or posterior side of the opening, as the orifice is usually drawn well forward toward the symphysis, and the posterior is the thickest side. I have used Young's prostatic punch in making this cut, but think division by cutting and divulsion to be as efficacious.

The secondary operation should be followed by systematic dilatation of the bladder neck for at least a year, first weekly, then semimonthly and monthly. This is preferably done with the Kollmann dilator with the Guyon curve, as the beak of this instrument will most certainly go into the bladder.

The patients on whom a second operation was performed are all in good condition, as far as I know, except one who had been operated on twice before coming into my hands. He healed up well above, but had a weak voluntary sphincter, and has incomplete control of the urethra. At times he retains well, but has spells of incontinence. This patient has also a syphilitic history, and although his reflexes are active, I suspect that syphilis is a factor in the poor result.

This short series of five cases is too few on which to base any conclusions, other than those already stated. The similarity of these cases is striking, and they seem to give a clear indication for the intentional division of the vesical sphincter at the time of operation.

CONDYLOMA OF THE BLADDER

REPORT OF CASE

ROBERT H. BAKER, A.B., M.D.
ANN ARBOR, MICH.

The report of unusual cases, together with an acknowledgment of mistaken diagnosis, must always be a chief means in the advancement of our science. The rapid strides made in diagnosis of bladder tumors in the last three years through the aid of the modern cystoscope has tended to make us overconfident. For this reason I undertake to report a case of carcinoma of the bladder incorrectly diagnosed. I wish also to make a few suggestions which in the future may aid us in such cases.

REPORT OF CASE

History.—Mrs. F., aged 30, Jewish, complained of painful and frequent urination accompanied by hematuria. The family history was negative. She had always been well till the present illness. The menstrual history was negative. The patient had had no leukorrhea.

She was married six years before I first saw her. At about this time she acquired gonorrhea and was treated with astringent bladder injections by a midwife. The following year, she had a miscarriage at the third month, as the result of a fall. No pregnancies had since occurred.

The patient was inclined to date the onset of her illness from the bladder irritation induced by the astringent bladder injections used in connection with the treatment for gonorrhea. The trouble became more pronounced after the miscarriage, for which she was in a hospital six days. Two months later, she had marked difficulty in voiding, and was catheterized for a short period by a midwife. At this time, she had severe burning pain in the bladder region. Five or six weeks later, she noticed a few drops of blood in the urine at infrequent intervals. This bleeding did not become persistent until January, 1917, when she began to pass some bright blood at each urination. Two years before I first saw her, she had a long course of bladder irrigations without benefit, except to control the tenesmus. A year ago she began to pass gravel and clots containing stone. She has noticed that free drinking of water improves her symptoms. Though bleeding more freely, she has gained in weight during the last few months.

Physical Examination.—This was negative. The blood and spinal fluid Wassermann reactions were negative. On two occasions the vaginal smear had a few pus cells with rare diplococci, very suggestive of gonococci, but none were found to be intracellular.

October 23, cystoscopic examination revealed a large coral-like mass obstructing the view of both ureters, with smaller patches lying free on the floor of the bladder, and one patch on the anterior wall. This polypoid growth was on a short pedicle, and was overlaid with a thin urinary salt deposit, which was not sufficient to grate against a metal instrument. There was no tendency to bleeding except as the salts were dislodged from the surface. The specimen of urine obtained showed a little pus with a considerable number of blood cells.

October 24, an attempt was made to remove some tissue for microscopic examination, through the cystoscope. The examination revealed the presence of pus clot with lime salts.

A second specimen was obtained three days later, when clot and salts were again reported.

Operation and Result.—November 1, operation under ether was attempted as an exploratory measure, in the hope that some portion of the growth could be removed, the ureter transplanted, if necessary, and remaining portions left for fulguration. A thick wall of fat was encountered, hindering the operation considerably, but when the bladder was opened it was found that the tumor was very firm and that it completely encircled the urethral orifice, as well as both ureters, with hard nodules on the anterior wall of the bladder. The tumor did not project from the bladder wall, but seemed to be infiltrating so definitely that the wound was closed with suprapubic drainage, as in an inoperable case of carcinoma.

Convalescence was good until the fifth day, when a minor infection in the fatty wall set up a severe cystitis. At first this did not react to irrigation, and some bleeding was encountered until the irrigating solution was changed to one of dilute antipyrin. Quite suddenly the infection cleared, and the wound was completely healed on the twenty-second day. The patient claimed to be feeling normal, with no burning, voiding only once in three or four hours instead of every half hour, as before the operation.

At this time the correctness of the diagnosis was doubtful, and the examination for syphilis was repeated with a provocative arsphenamin (salvarsan) injection. The result was again negative, as was also the pelvic examination.

November 22, the urine was absolutely clear, containing no blood nor pus. Cystoscopic examination revealed a normal bladder mucosa even around the ureteral openings, which were clearly seen. All signs of the tumor had disappeared except a very small flat patch far back in the floor of the bladder.

The patient returned to the hospital within a week, denying all symptoms and absence of any frequency. A week later, the bladder was again examined and showed considerable diminution in the size of the area. Up to January 8, the patient was observed weekly. At the last two examinations there was absolutely no evidence of the former growth. Since her discharge from the hospital, she has had no treatment except the weekly bladder washings received during her visits.

COMMENT

For lack of better classification, I have chosen to describe this case as one of condyloma. The accepted grouping of bladder papillomas into benign and malignant types is only arbitrary. Our criteria of diagnosis are still in their infancy. From the appearance of certain types and their multiplicity, we have assumed that all such tumors are malignant. Some authors may take exception to this statement. But is it not essentially true? Do not the men who see a cauliflower growth with multiple tumors treat these cases as malignant? This is the natural result of surgical experience with malignancy anywhere in the body. Because of this fact, we are compelled to read reports of unusual cures of cancer of the bladder.

When pathologic diagnosis can be obtained, we cannot doubt the validity of these reports. But in just such cases as the one I present we hear of cure by cautery or operation without this established diagnosis. It seems that there must be other similar cases of new growth excited by chronic irritation that may have been falsely diagnosed. Therefore the urologist must be cautious in his treatment unless the means are at hand to establish his convictions by the microscope.

CONCLUSIONS

1. Diagnosis of cancer of the bladder must not be made without microscopic evidences.

2. Long-continued, chronic irritation may give rise to warty proliferation of the bladder mucosa, not unlike cancer.

3. The chronic irritation may have its origin in a gonorrheal infection, and takes a form not unlike the condylomata acuminata and deep urethral polyps of similar origin.

University Hospital.

PRIMITIVE SURGERY OF THE WESTERN HEMISPHERE *

LEONARD FREEMAN, M.D.
DENVER

Two causes of surgical and medical ailments were universally recognized among the early inhabitants of the Americas, one natural and the other supernatural. If the cause was not easily perceived, as was often the case, it was regarded as supernatural. The supernatural diseases were supposed to originate in various ways: by the casting of spells, by contact with some objectionable person or thing, or by the presence of something in the system, such as an evil spirit, a stone, a piece of wood, a worm or an insect. Manifestly, they came just as near to the recognition of bacteria as they could without knowing anything about them.

It must not be thought, however, that real causes were not given their due significance, if they made themselves sufficiently apparent, as often happened in surgical lesions at least. The ancient members of our profession were by no means always as childish as they are sometimes represented to be. It goes without saying that supernatural ailments can be treated by supernatural means only, which accounts for the existence of the so-called medicine-man, with his impressive fetishes, antics and incantations. In this connection it should be understood that the word "medicine" was not confined originally to material remedies, but had in addition a magical and supernatural significance. Hence, a "medicine-man" was not only a physician in our sense of the word, but was also a sort of priest, prophet, magician and all-around dealer in the mysterious.

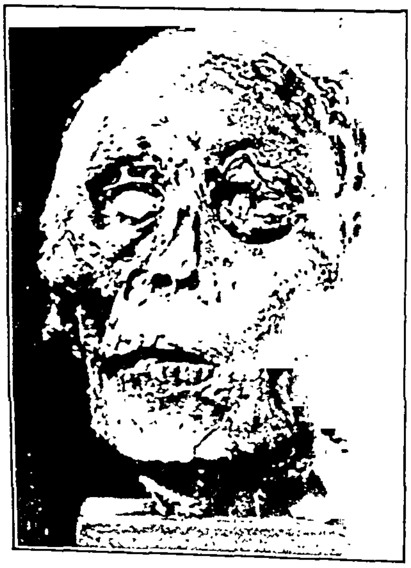


Fig. 1.—Head of Peruvian mummy, showing trephine opening in left temporal region, and an apparent right facial paralysis (U. S. Ethnological Reports).

THE MEDICINE-MAN

The medicine-man[1] was usually a person of more than ordinary tact, knowledge and intellect. In addition to being a surgical and medical authority, he also was consulted on many things concerning the spiritual and temporal welfare of his people. Although dealing extensively in the occult, he had a dignified and firm belief in himself and his methods, and was much in earnest in spite of the legerdemain and grotesque dress and actions that he employed to emphasize his doings and impress their importance on the observer. There is even reason to believe that his fantastic dances and gestures, facial contortions and weird chantings exercised a hypnotic influence on his patients, leading to relaxation and sleep, which may have facilitated the recovery of some who would have been given up to die by more civilized practitioners. In fact, when one comes to think of it, such things are merely an exaggeration of that "personal influence" which every physician is supposed to exercise in greater or less amount.

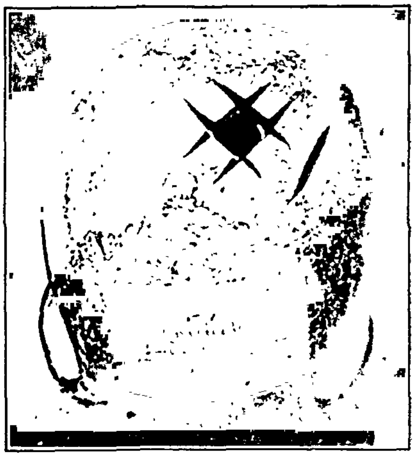


Fig. 2.—Square trephine opening (U. S. Ethnological Reports).

To a certain extent, the medicine-man was the protector of the persecuted, and the refuge of the fugitive. Even an enemy could find sanctuary in a medicine-

---

* Presidential address delivered before the Western Surgical Association, Omaha, Dec. 14, 1917.

[1] Although the title is masculine, it is interesting to note that there were also "medicine-women," who held high places in the profession and no doubt deserved the confidence placed in them by their clientele. The costume and make-up of a typical medicine-man is well described by M'Clenachan: "The face is painted, usually red, with yellow trimmings about the eyes and mouth. The hair, always worn long, has a tuft of feathers braided in at the crown; and to braids of hair hanging about the shoulders are attached horsehairs, snake rattles, shells, etc.; over all is dusted red and yellow paint. The ears are pierced by numerous rings, and suspended from them hang shells, reaching to the shoulders. About the neck are strings of bright colored beads, with bird's claws, pebbles, buffalo teeth, etc. The wearing apparel consists of a shirt made of rawhide, leggins, breech clout, moccasins, and over all a blanket or buffalo robe. The shirt is daubed with paint, with some hideous image on the breast. The leggins are made to fit closely, but with a wide strip along the outside, to which is attached beads, bones, etc. The blanket or robe, in either case gaily adorned, is loosely thrown over the shoulders." Of the medicine-man's methods of treatment, Hrdlicka succinctly says: "The treatment varies according to the supposed necessities of the case, consisting of propitiation of broken tabus, repeated prayers to the elements or deities, the deposit of prayer sticks or countercharms in shrines, or appeal to the patient's personal protector or totem, the use of especially effective songs, rubbing or kneading (sometimes quite violent, though employed more commonly for supposed magic effects), rubbing liquid medicine into the skin, extraction of the objective cause of the disease, blowing air or tobacco smoke onto the patient, passes with fingers moistened with saliva, ceremonial observances or rites including painting of the body of the patient as well as that of the medicine-man and making sand paintings, noises (made with voice, rattle or drum), commands and exhortations to drive away bad spirits, assurances given the patient, various symbolic representatives, purification of the body by sweat baths, purging and emesis, strong sucking, cauterizing, scarifying, bleeding, external applications, the administration, externally or internally, of secret magic or other medicine, and various regulations of the behavior of the patient. the larger curative ceremonies several medicine-men acted . or, if but one is present, he may have from one

lodge, where his wounds were dressed and his other needs attended to. We should indeed be proud that this same spirit has always characterized the medical profession of all times, and that it still exists among us. Looked at from this point of view, the Red Cross is a great medicine-lodge.

It was not much easier to become a "medicine-man" in those days than it is now. The usual method was to spend at least a year with a preceptor, paying him well for his instruction. There was much to be learned and remembered, for these preceptors all varied in their bewildering practices, and it was customary to study under more than one. As with the modern doctor, even after graduation the life of the medicine-men was not one of pampered ease. He was compelled to respond to every call, night or day; although the Pueblos permitted an exception to the rule, if the unwilling physician could catch the messenger within a given distance and kick him. How many of us wish we had the same privilege.

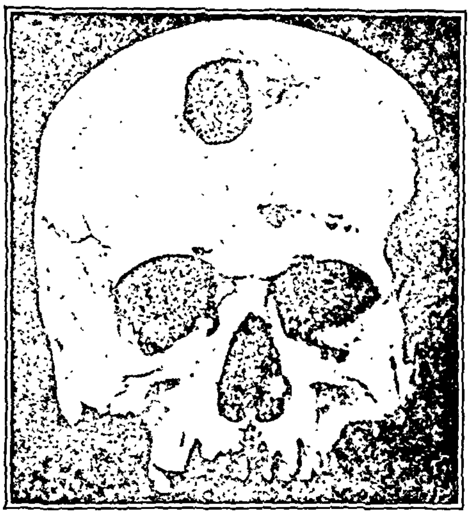


Fig. 3.—Large antemortem trephine opening (U. S. Ethnological Reports).

If the patient died, the doctor also ran the risk of death, at the hands of the relatives; and, at the very least, a number of failures to cure led to a loss of reputation and final dismissal from the profession. There was, however, a saving clause, at least among the Pueblos, for when the medicine-man's power began to wane he could rejuvenate it by rubbing his back against a certain sacred stone. The location of one of these stones is still known. The fees were of good size and paid promptly, often in advance. They consisted, not unlike those of a country doctor, of such things as blankets, horses, skins, weapons and various other personal effects. It should be emphasized, however, that to the credit of the profession much charity work was done then, just as it is now.

Curiously enough, there exists throughout the world a marked similarity in primitive medicine which suggests, perhaps, a common origin of the various races. In accordance with this, the methods of treatment were often identical among the prehistoric peoples of North, South and Central America, including the Indians, the Pueblos, the Aztecs and the Incas. The old Spaniards were in a position to observe these things and should have been able to tell us much about them; but unfortunately those aggressive pioneers were more interested in killing than in curing, so that their descriptions are unsatisfactory and meager. Enough has been handed down, however, to make it clear that considerable crude but efficient surgery was practiced, some of it being done in hospitals, at least in Mexico.

PRIMITIVE AMERICAN SURGERY

Let us consider this primitive American surgery more in detail:

Trephining.—As is well known, this is one of the very oldest surgical operations, and was extensively practiced by prehistoric peoples everywhere. It is probable that it was done not only for therapeutic purposes, but for other reasons as well; for instance, to let out evil spirits, to obtain amulets for decorative and other uses, or merely as a religious rite. The wearing of amulets made from sections of skulls was a common custom among the earlier inhabitants of the world. They were mostly obtained postmortem, but some were evidently removed from living captives, possibly with the idea that they were more potent as talismans against disease, or that they conferred on the wearer the physical or mental powers of the original owner.[2] But there can be no question that much trephining was also done for therapeutic purposes — for fracture, epilepsy, insanity, convulsions, headaches, etc.— as it is among various primitive races today.

According to archeologists, trephining was done far more frequently in Peru and Bolivia than in any other parts of the Western Hemisphere. Among 12,000 skulls from Bolivia, for example, 5 per cent. had undergone this operation, and in Peru the percentage was not much less, showing that the procedure was much more common then than now. Less is known about trephining in the United States, although occasional skulls with the characteristic openings have been found in the tumuli of the mound builders. It was more frequent, however, in Mexico and Central America.

Although many of the operations were done postmortem, others were antemortem, as is shown by the growth of bone around the edges of the openings. It may be inferred that some of the patients died during the operation, the button having been outlined but not removed. We can well imagine that a "death on the table" must have been accompanied with the same bitter regret and disappointment as it is now.

We are justified in believing that these surgical interventions were frequently for therapeutic purposes, because fractures are often found in connection with them; and even when no fracture can be seen, it is not unreasonable to suppose that a puncture of the skull, such as must have been frequent from the spiked war clubs then in use, may have existed and been removed by the operation. And, in addition, the fact that the openings were sometimes at a distance from the break in the bone might well mean that the principle of decompression was recognized — perhaps learned from experience in trephining for headaches, epilepsy, insanity, etc. In fact, if we do not regard these operations as deliberate decompressions, they would seem to be purposeless.

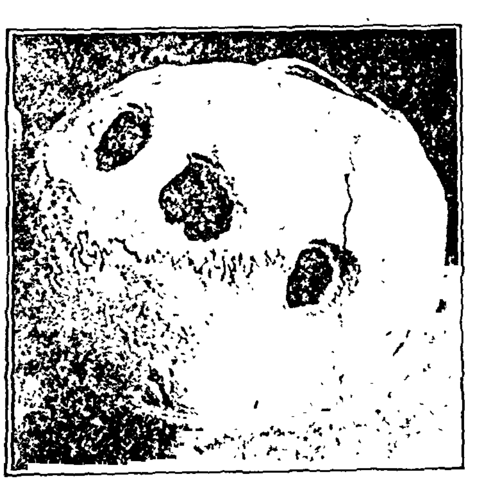


Fig. 4.—Multiple antemortem trephine openings (U. S. Ethnological Reports).

In the Smithsonian collection is the skull of a Peruvian mummy on which the dried soft parts are still in place. A trephining has been done at the seat of a fracture in the left temporal region, the interesting point being that the face is strongly drawn to one side, apparently the result of paralysis — a most uncanny phenomenon, to say the least (Fig. 1).

---

[2] Even in the materia medica of more modern times, powdered human skull, especially the wormian bone (known as the os epilepticus) was used as a remedy for epilepsy.

Most of the trephining operations in America do not seem to have been done very skilfully. They were crude jobs with crude tools that often slipped during the laborious process, as shown by scratches on the adjacent parts of the skull.

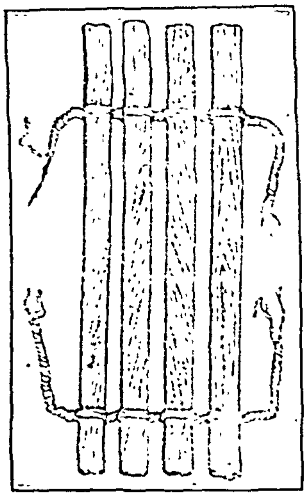


Fig. 5.—Splint made of sticks held together by strips of rawhide (Medical and Surgical Reporter, 1879, 2).

The shape of the opening was usually square or oblong, although sometimes round or oval. The square opening (Fig. 2) was peculiar to South America. It was made by cutting four rectangular intersecting grooves, almost but not quite through the bone, and then prying out the loosened piece of skull. The round openings (Figs. 3 and 4) were produced by gradual scraping, as shown by the characteristics of uncompleted operations.

From the nature of the grooves and the lines on their sides, it is probable that they were cut with a stone instrument, like a spear head, set in a handle and possessing a rough and rather blunt point—a kind of single-toothed, stone saw, as it were, by means of which the bone was slowly worn away by a to-and-fro motion aided by strong pressure. It is likely that the round holes were scraped out with sharp flakes of flint or obsidian, as is still done by certain more or less uncivilized tribes in various countries.

For a number of reasons, it is supposed that the patient's head was held between the knees of the operator, who laid open the scalp with a crucial incision and then sawed, scraped and pried away at the unfortunate victim's calvarium, with many slips of his crude instrument, until an opening was made. The time required, as established by experiment, must have been at last an hour and often much longer.

It may have been that some sort of anesthetic was employed, such as was used by the Pueblo Indians; but if not, what a nightmare of an experience it must have been for the patient, to say nothing of the nervous strain on the surgeon; although, when one considers the matter calmly, it could not have been much worse than the torture occasionally inflicted on us by our dentists. After all, much depends on the point of view.

It should be mentioned that trephining is still practiced in the same primitive manner by native medicinemen in the mountains of Peru, although they now employ pocket knives, chisels, etc., instead of instruments of stone. The operation is generally done for fracture, and is surrounded by great secrecy and certain mystic rites. It is said to be quite successful.

Fractures.—In the treatment of broken bones, the results were often surprisingly good. It was customary to set them, more or less skilfully, by pulling and manipulation; but permanent extension was not often, if ever, employed. Splints of various kinds were in universal use. They frequently were made of bark, the natural curves of which facilitated adjustment to the limb, especially after soaking in hot water and cutting away portions to accommodate bony prominences about the joints. Grass, scrapings from tanned hides, and other soft substances were used for padding. Occasionally the splint was filled with moist clay, which enclosed the limb somewhat like a plaster cast, and must have been both comfortable and effective. A window was always left over the site of a compound fracture to permit of attention to the wound.

Other sorts of splints were made from sticks or pliable branches, such as green willows, held together by strips of bark or leather (Fig. 5). The Cliff Dwellers of the Southwest, who from their mode of life must have broken their bones often, knew how to manufacture splints that scarcely could be improved on. Specimens exhibited in the Museum of the State Historical and Natural History Society, Denver, are beautifully made from polished wood and correctly curved to fit the limbs for which they were intended, the edges being nicely rounded to prevent injury to the skin (Fig. 6). Similar splints were employed by the Aztecs.

Often the splints were removed and the limb massaged, a practice that gives good results and deserves more attention than is given to it by modern surgeons.

In the treatment of fractures, the Hopi Indians employ splinters of trees which have been struck by lightning; not, however, as splints, but merely as fetishes. For some reason or other, they believe that those who have themselves received a lightning stroke are possessed of special skill in the care of broken bones — rather a severe requirement for a specialist in fractures, one would think.

In the Field Museum, Chicago, is exhibited an excellent pair of well padded crutches from the cliff dwellings of southern Utah (Fig. 7).

Dislocation.—The reduction of many of the simpler forms of dislocation was quite generally practiced, both by extension and by manipulation, although the methods were of course empiric and without scientific foundation.

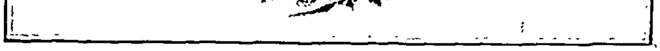


Fig. 6.—Splints found in ancient cliff dwellings of southwestern Colorado (Museum of the State Historical and Natural History Society, Denver).

Treatment of Wounds.—The suturing of incised wounds was a common procedure; but it was considered so necessary that free suppuration should occur that thin pieces of bark were sometimes placed between the edges in order to check primary union. The sutures were obtained from animal tendons, human hair or plant fibers. The tendons were smoked hard and dry and were not absorbed, but were removed in about a week. It was customary to provide for ample drainage, which was often facilitated by the insertion of strips of bark or other material.

The frequent washing of all sorts of wounds, perhaps several times daily, was universally practiced, and may have had much to do with the rapid, not to say astounding, recoveries that are said frequently to have occurred. The irrigations were made with simple cold water or with decoctions of certain things, such as basswood, willow, slippery elm, lichens and various herbs. In addition, the wounds were often packed with charcoal, ashes, piñon gum and other balsams, or sprinkled with these substances in the form of powder. Most of the balsams and decoctions probably had more or less of an antiseptic action, but it is questionable if this was sufficient to be of much value.

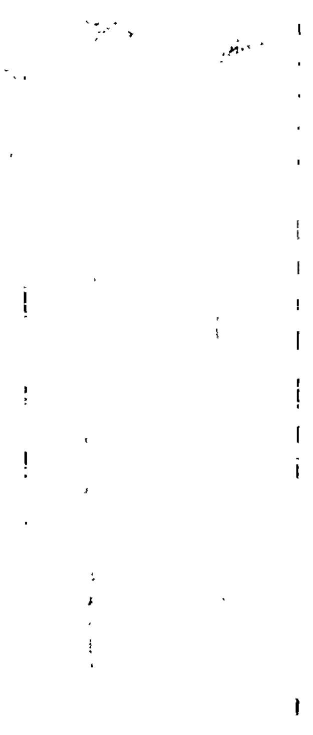


Fig. 7.—Crutches found in cliff dwelling of southern Utah (Field Museum, Chicago).

Saliva, both pure and mixed with other things, was very generally used; in fact, it was quite the proper thing for a physician to spit on a wound or into the materials used in its treatment. What consternation such a proceeding would produce in the operating room of a modern hospital! Nevertheless, we should not forget that animals always lick their injuries, and that lesions about the mouth heal even more readily than elsewhere. Another revolting custom, according to our point of view, was the sucking of pus out of wounds—a much valued method of treatment.

In Brazil, large open wounds of the extremities were sometimes handled in an extremely interesting manner. The part was wrapped in the inner bark of a tree, and suspended on a frame over a bed of glowing coals until nearly roasted. This method was painful, but is said to have been effective, primary union often resulting within a few days under the most unpromising circumstances.[3]

Although there is little evidence that actual laparotomies were ever performed, we at least know, from a description of an operation witnessed early in the seventeenth century by Bernabé Cobo, that they were sometimes "faked" for psychologic purposes. He says: "The sorcerers (medicine-men) did as if they would open him by the middle of the body with knives of crystalline stone, and they took out of his abdomen snakes, toads and other repulsive objects." However, when we remember with what dexterity th body was opened for sacrificial purposes by t it should not be surprising if they someti formed operations on the internal organs.

Punctured Wounds.—Among the Pueblos, especially, no attempt was made primarily to remove foreign bodies, such as arrow heads; but they were gradually forced out by firm kneeding and pressure applied

to the surroun
to continue th
although in the
it failed, an o
incision. Irriga
frequently practi
deep into the open
by means of the
bladder. Some of
wrapped with cotto
as part of the gener
although they lacked
reminds one of the n
of punctured wounds
mouth was an ordina
which undoubtedly po
objectionable features.

Treatment by Suctio
mouth, either directly o
wood or bone (Fig. 8). In
from wounds, ulcers and a
circulation promoted, thus c
suction treatment advocat
thought of using the mouth d
is repulsive, but the danger to
and the method was undoubte
was it much worse than the
done by medical students in the
Bolivia, at the present time, m
seen to suck suppurating woun
ulcers. Men who were thus will
selves for the welfare of the
respected and not ridiculed, ju

o
out
Dw
ping
abscess
(Museu
ural His

during th
species of

---

[3] That the North American Indians occasionally did quite good surgery is evidenced by an operation, witnessed by Cushing, on an inflamed and gangrenous foot. The trouble was supposed to be due to a mysterious maggot, and the procedure was carried out for the purpose of dislodging it. A crucial incision was made, the dead tissue excised, and the bone scraped. The wound was then repeatedly irrigated, packed with piñon gum, powdered and bandaged. The final result was satisfactory. Could a modern surgeon have done more?

Such procedures were of course nothing but blatant charlatanism, but they had a certain justification in the psychologic effect which they must have produced.

Cupping.—This was a common remedy. It was done by suction through a buffalo horn or a tube of wood or stone, or even by the mouth alone. Enough force could thus be exerted to cause much congestion, and an expert in the art could even raise a blister. Wet cupping was achieved by a preliminary scarification of the skin. In the Museum of the State Historical and Natural History Society, Denver, are some peculiar wooden instruments from the Colorado cliff-dwellings, labeled "use unknown," which might very well have been employed for cupping. They have a hole on one side into which a stem could be inserted to suck through, the body of the instrument being used as a handle to press it firmly against the skin (Fig. 8 *A*).

Scarification. — This was an almost universal practice, both for local troubles and those of a more general nature. It was often done with a flake of flint, although more elaborate instruments were in use, provided with many sharp points made of fish spines, flints, etc. A method employed in Brazil was to make a number of cuts in the skin through which was inserted a stone instrument like a spear head, which was moved about in the subcutaneous tissues — a mode of treatment that could not have been popular among primitive patients.

Cauterization. — This was much used. It was accomplished with a coal of fire, a hot stone, or by burning a little ball of cotton or other inflammable substance on the cutaneous surface. Among other things, indolent wounds and ulcers were often stimulated by cauterization, and it was also employed as a counter irritant in various painful affections. A favorite method was to burn tobacco or some other material in a tube made of stone (Fig. 8 *B*), and then blow the hot smoke through the tube on the area to be treated, decided virtues being attributed to the kind of smoke employed.

Phlebotomy.—This was extensively used in the treatment of local inflammation as well as many general diseases, being considered almost as much of a cure-all as it was with our medical forefathers. The vein selected was generally in the leg or arm, but occasionally in the neck or temporal region. The instrument employed in opening the vessel was made from a sharp flake of flint or obsidian, a thorn, a fish spine, or a tooth of some sort set in a handle. It was driven with a quick stroke into the vein. In Brazil, a little arrow, made for the purpose, was shot into the vein by means of a diminutive bow, thus coming as near to a "shotgun prescription" as was possible under the circumstances.

Inflammations.—These were treated commonly by poultices made from plants, leaves or barks (slippery elm, etc.), by cupping, and by counterirritants, such as the cautery. When an abscess resulted, incision was often resorted to, and the contents were aspirated with the mouth, directly or through a tube.

Amputation.—Although not extensively practiced, amputation was undoubtedly done at times, the bleeding being checked, perhaps, by the application of hot stones, as has been observed among the Indians. An image on an ancient vase found in Peru distinctly shows the stump of a leg due to an amputation.

Hemorrhage. — The use of the tourniquet was undoubtedly understood by some, but the more common method of checking bleeding was by the actual cautery (a heated stone) or by local pressure aided often by such coagulants as spiderwebs and the fine fibers of plants.

Hernia.—Many medicine-men knew how to hold a rupture in place quite skilfully with various forms of pads and bandages; but the most remarkable procedure was that resorted to by the Pueblos, who treated umbilical hernia by placing on it a number of large black ants, the bites of which were supposed to have a curative effect. It would be interesting to know the origin of such an astonishing idea.

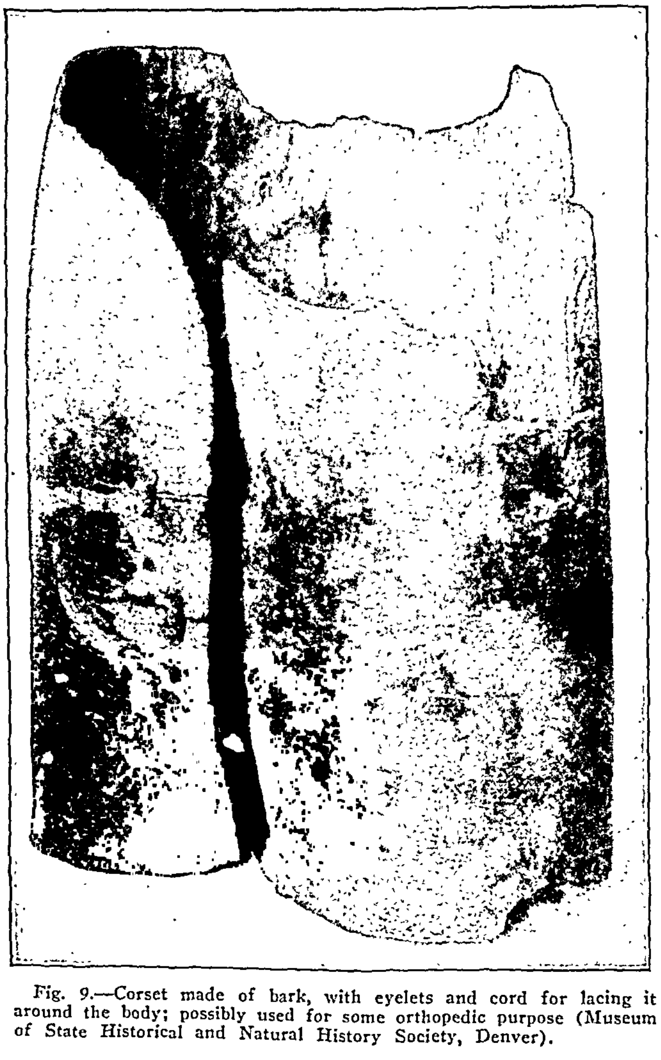


Fig. 9.—Corset made of bark, with eyelets and cord for lacing it around the body; possibly used for some orthopedic purpose (Museum of State Historical and Natural History Society, Denver).

Pterygium. — Operations for pterygium were done in both North and South America, the growth being more or less skilfully removed with sharp stone knives. It was probably this operation that gave rise to the erroneous idea that cataracts were removed by these ancient ophthalmologists.

Artificial Skull Deformities.—The production of these may be considered as a sort of orthopedic surgery[4] extensively practiced by various North American Indians, as well as those of Mexico and Peru. Sometimes a board was bound against the forehead of an infant and kept there during early growth, resulting in a hideous flatness of the front of the cranium (Flathead Indians). Other tribes, such as the Vancouvers, Incas and Aztecs, applied pads and tight bandages to the head in such ways as to render the skull conical, enormously elongated, or deformed in other monstrous ways. Although producing an outward semblance of idiocy, these peculiarities of form did not seem in any way to influence the mentality. Flattening of the occipital region, so commonly observed in collections of prehistoric skulls, was probably more or less accidental and due to pressure of the infants' skulls against the boards on which they were habitually strapped and carried.

---

[4] The Museum of the State Historical and Natural History Society of Denver possesses an interesting appliance of bark made to fit the torso and provided with eyelets as though to lace it together in front (Fig. 9). It closely resembles the modern orthopedic corsets used in the treatment of lesions of the spine, and may have been used by the Cliff Dwellers for this purpose or for fracture of the ribs.

Anesthetics.—Although it cannot be questioned that some of our primitive peoples possessed more or less reliable methods of anesthesia, it is hardly probable that these were very generally known or employed. For instance, the Zunis and some other tribes used for the purpose a substance obtained from the jimson weed (*Datura meteloides*), containing stramonium. It was administered in sufficient amount to produce indifference to pain or even complete unconsciousness, and in this condition abscesses were opened, fractures set, dislocations reduced, and other surgical procedures accomplished. In spite of heroic dosage, no serious harm seemed to result. It is quite possible that this and similar methods were also in use among the Aztecs and Incas, who were so closely related in many ways to the Pueblos.

In this connection should not be overlooked the strong hypnotic influence undoubtedly exercised by the medicine-men, with their bizarre make-ups, weird incantations, and fantastic antics, which were well calculated to make a profound impression on their credulous patients.

Metropolitan Building.

Housing Conditions and War Workers.—*The necessity for* adequate and better housing conditions for men and women workers in the war industries in this country has arisen in an acute form, not only in towns and cities of considerable size where these industries are located, but also in localities where munitions plants, for instance, have been built remote from places of sufficient size to afford any possibility of housing the employees. It has been the experience of England since the beginning of the war that the usual agencies for providing housing for industrial workers have fallen down, in that greater returns on capital have been possible from other sorts of investment. After experimenting with various plans of encouraging the building of houses, including loans of increasing proportions of the capital required, the government has been compelled to assume completely the job of providing houses. At first, cottages or hutments of a more or less temporary nature, community cottages and barracks were constructed, but the experience has culminated in the planning of complete housing communities and the erection of permanent houses of a very good and substantial class, with wide streets, pleasant outlook, good sized gardens, and the conveniences and comforts of modern, healthful ways of living. A writer in the *Journal of the American Institute of Architects* has described the evolution of the British government housing problem during wartime, and while he feels that in this country the problem is not identical, and that the whole matter should be studied from a different point of view, yet he reluctantly concludes that "if English experience has any value at all for us in this matter, it seems clearly to point in the direction of the nation itself shouldering a burden which has become too heavy to be carried by employers and individual communities alone."

OBSTRUCTIVE STERILITY IN THE MALE

TREATMENT BY DIRECT VASO-EPIDIDYMOSTOMY *

V. D. LESPINASSE, M.D.
Assistant Professor of Genito-Urinary Surgery, Northwestern University School of Medicine
CHICAGO

Obstructive sterility in the male is easily diagnosed by microscopic examination of the semen. The semen shows a complete absence of spermatozoa. The only treatment in these cases is surgery. We must make an anastomosis around the obstruction to permit the passage of the sperm. The particular operation necessary to be performed depends on the location of the obstruction, thus:

1. If the obstruction is in the epididymis, the operation will be direct vaso-epididymostomy.
2. In the scrotal vas, resection of the obstruction and union of the vas, either end to end or lateral.
3. In the pelvic vas or ejaculatory duct, author's sac operation.
4. In the pelvic vas on one side and epididymis or scrotal vas on the other side, anastomosis of the vas on one side to the vas on the other side above the obstruction; crossed anastomosis.
5. There may be combinations of any of the foregoing.

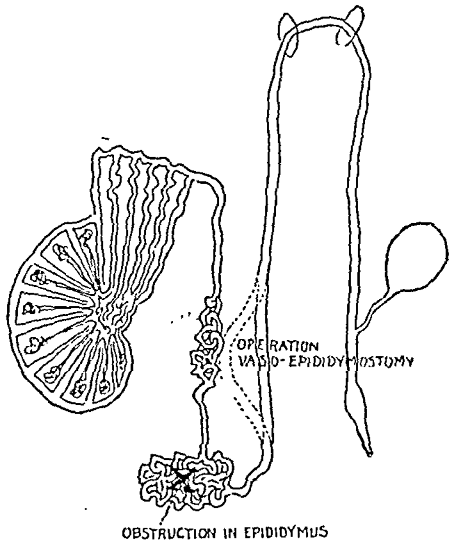


Fig. 1.—Schematic drawing of the sexual tract of the male; x marks an obstruction in the tail of the epididymis, and the operation necessary for relief, direct vaso-epididymostomy, is indicated on the dotted line.

Diagnosis of the point of obstruction (when in the epididymis) is made by inspection at the time of operation (Fig. 1). When the obstruction is in the vas, the diagnosis is made by injecting colored salt solution into the central end of the opened vas and noting its appearance or nonappearance in the urethra.

When the obstruction is found in the globus minor of the epididymis, the operation necessary to relieve this obstruction is an anastomosis between the epididymis tubule (Fig. 1) above the point of obstruction and the vas deferens below any obstruction that may be present in it. All the present operations (Martin's operation) designed to join the vas to the epididymis tubule are indirect; that is, after the epididymis capsule has been incised, a small portion of the protruding epididymis tubule is cut off, then the vas is split longitudinally, and the open incision in the vas is sewed to the epididymis capsule over the raw surface of the epididymis; hence there is a considerable distance that must be bridged by epithelium between the functional end of the epididymis tube and the vas. Unfortunately, this bridge often fails to develop, and consequently the operation is a failure.

---

* Awarded silver medal, Scientific Exhibit, Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* From the Laboratory of Experimental Surgery, Northwestern University Medical School.

The two chief causes of failure are (1) the overgrowth of connective tissue, choking the epididymis tubule, and (2) the organizing of the blood clot that forms on the cut surface of the epididymis, whereby the epididymis tubule is closed. To circumvent these difficulties I devised an operation for direct anastomosis between the epididymis tubule and the lumen of the vas. I have called this operation direct vaso-epididymostomy. As it brings the epithelium of the vas *into* direct union with the epithelial lining of the epididymis tubule, the danger of hemorrhage is absolutely eliminated, and the danger of choking by connective tissue is practically eliminated.

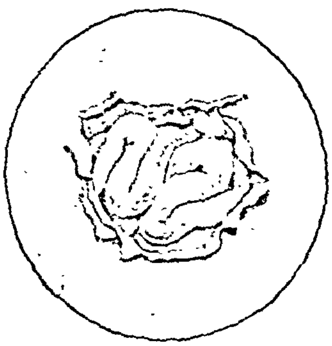


Fig. 2.—Capsule of the epididymis cut through and reflected, exposing the epididymis tubule characteristically coiled on itself.

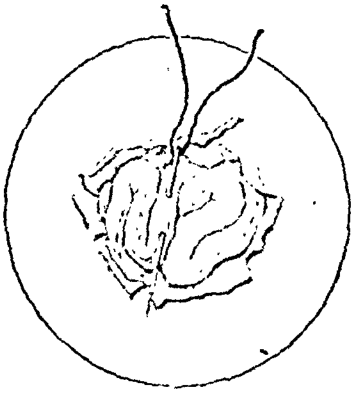


Fig. 3.—Special bayonet pointed sterility needle entering the tubule lumen, then passing along the lumen for a short distance, then out again. The needle is armed with 00000 silk.

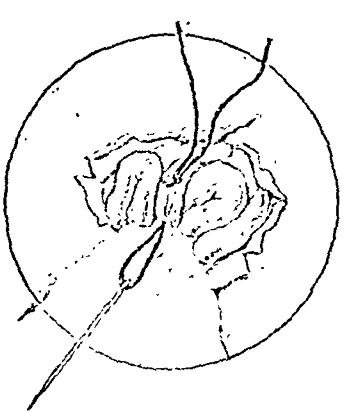


Fig. 4.—Needle pulled through and the threads now in the lumen of the epididymis tubule. Note the escape of the contents of the tubule. This suture is now drawn through, and its ends passed into the lumen of the vas. The little rounded mass where the suture enters the epididymis tube wall is petrolatum that has been stripped off from the thread.

TECHNIC OF DIRECT VASO-EPIDIDYMOSTOMY

An incision is made into the scrotum down to and into the tunica vaginalis testis. The epididymis is exposed, and the *point of obstruction is noted.* The lumen of the vas is now opened by a short longitudinal incision, and a colored fluid is injected into the central end of the vas. If the fluid appears in the urethra, we know positively that the vas is open from the point of incision to the urethra. Next, the epididymis capsule over the epididymis compartment immediately above the obstruction is incised carefully down to the tubules, great care being taken (1) that all the different layers of the capsule are removed from the epididymis tubule, and (2) that the epididymis tubule itself is not nicked or cut into at any point. The epididymis tubule will protrude through the opening thus made in the epididymis capsule (Fig. 2). A tubule is now selected whose direction is the same as the long axis of the body of the epididymis.

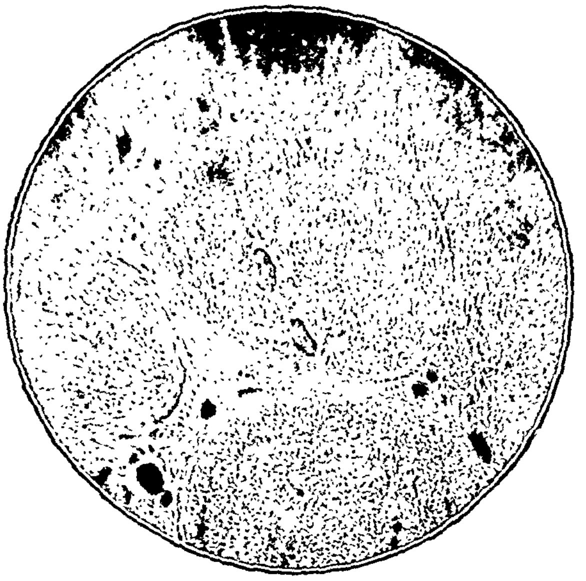


Fig. 5.—Low power photomicrograph of the epididymis tubule into whose lumen has been passed a suture of human hair. *The two oval bodies are the cross-section of the hair.*

A suture of 00000 silk mounted *on a No. 19* bayonet pointed needle is now passed through the wall of the epididymis tubule (Fig. 3), then *down the lumen* of the tubule and out again through the wall of the epididymis tubule, from 2 to 4 *mm. from* its point of entrance (Figs. 3, 4 and 5).

In Figure 4 we see the needle drawn through, and the outpouring of the epididymal secretion. This secretion is aspirated into a small syringe, and then placed on a microscopic slide and examined for spermatozoa. The ends of this crown or epididymal stitch are now passed through the longitudinal incision into the vas, down the lumen of the vas, and out through the wall of the vas. When both ends of the crown suture have been inserted into their appropriate ends of the vas incision, the appearance is as shown in Figure 6. Sutures of extraordinarily fine catgut, made especially for this purpose by Mr. Hollister, are now passed, one on each side of the longitudinal incision in the vas. These sutures (Fig. 7 *C* and *D*) includes both the wall and the epithelial lining of the vas in its grasp. These sutures are designed to hold the incision in the vas open. Sutures (Fig. 7 *A* and *B*) are now passed into the wall of the vas a short distance from each end of the incision. These sutures include only the wall of the vas, and do not enter the lumen of the vas at all. They are designed to fix the vas to the epididymis and carry the weight of the testicle, and are so spaced on the length of the vas that when they are tied down they leave the intervening vas slack, so as to remove all tension from the union between the epididymis tubule and the vas.

When the four sustaining sutures are passed and the vas is turned over, the appearance is as shown in Figure 7. The central or upper end of the crown stitch is now threaded on a long Hagedorn needle and after the testicle has been replaced into the scrotum, this needle transfixes the scrotum from inside out, bringing the crown thread with it. In from one to two weeks, when a necrosis of the wall of the epididymis tubule which has been in the grasp of the suture has taken place, this suture can be removed by slow gradual traction.

In order to visualize the amount of material that passes through one of these anastomoses, the spermatozoa were recovered from the entire amount of semen ejaculated. This has been done from different individuals and from the same individual at different times. The amount varies with the vigor and passion of the intercourse. A large lumen is not necessary. The size of the lumen obtained by this operation is shown in Figure 8, a specimen on which the operation of direct vaso-epididymostomy had been performed two months before. The vas has been torn from the epididymis, and in the center of the vas can be seen the little opening that connected the vas lumen with the epididymis tubule.

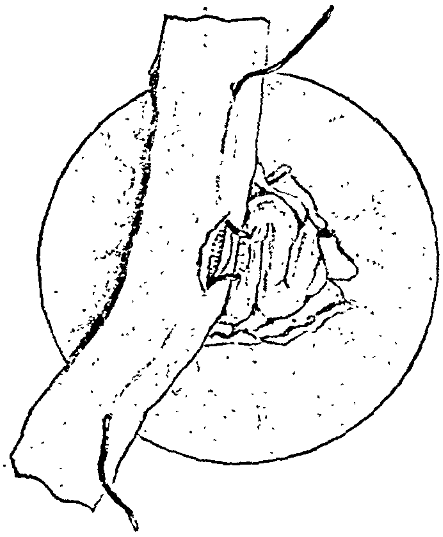


Fig. 6.—Crown stitch in place, its two ends entering the longitudinal slit in the vas. These ends enter the lumen of the vas and then transfix the wall of the vas. If traction is made on the ends of this thread, it will draw the epididymis tubule into the cut in the side of the vas.

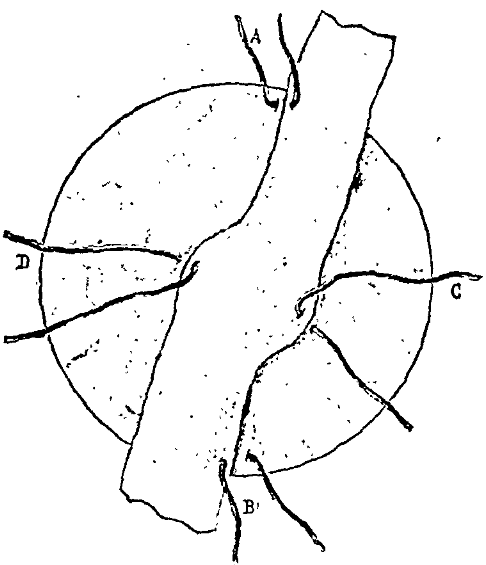


Fig. 7.—Two stitches, *A* and *B*, which fix the vas to the capsule of the epididymis and carry the weight of the testicle. They are so placed that the vas between them is slightly flaccid. The two stitches *D* and *C* hold open the longitudinal slit in the vas.

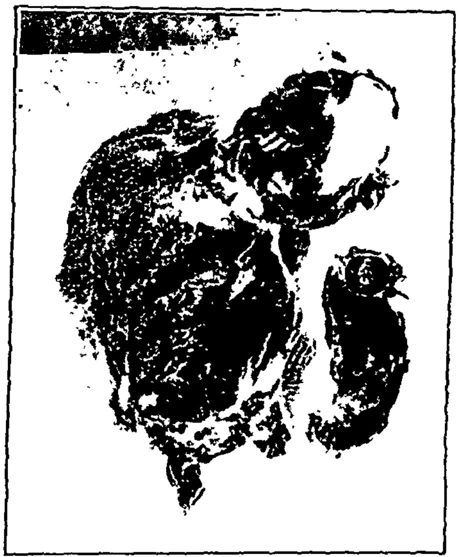


Fig. 8.—Vas on which the operation of direct vaso-epididymostomy had been performed two months previously, torn from the epididymis and viewed from the epididymal side. The lumen shows as a small black dot in the center of the picture.

The anastomosis made by the operation is illustrated in Figures 9, 10 and 11.

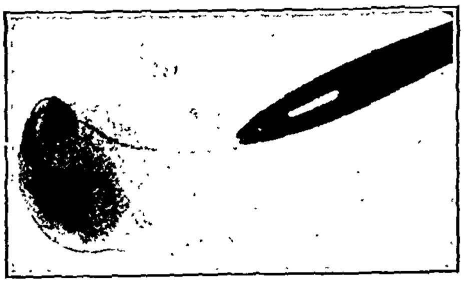


Fig. 9.—Injected vas and injection in first compartment of epididymis tubule, demonstrating that the anastomosis is patent. The crown stitch in this instance was of silver wire.

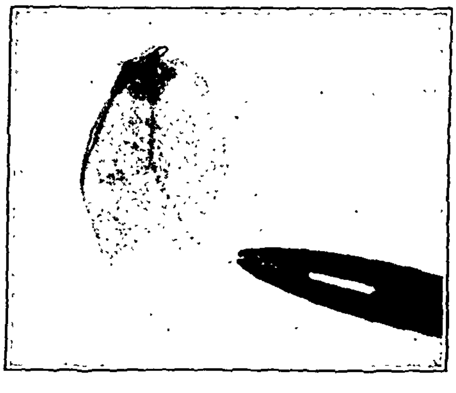


Fig. 10.—Another specimen, similar to Figure 9.

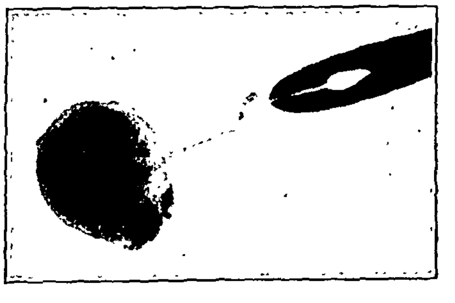


Fig. 11.—Exact location and size of the connecting lumen between the vas and the epididymis tubule. The crown stitch is of silk, and consequently it does not show.

Usually when we incise the vas we find that the lumen is empty. Occasionally we find that it is filled with a thick creamy material which, on examination, is found to be composed practically entirely of spermatozoa. In three instances in which the vas had been occluded for many years, the vas was filled with this creamy material; on examination it was found to contain no spermatozoa whatsoever, but simply round amorphous material which had the microscopic appearance of fat globules. They do not take the fat stain, however, and their exact chemical composition is not certain. In all of the cases in which this material has been found, the vas was obstructed in the pelvis. I consider this material diagnostic of a vas that has been obstructed at least ten years.

After this technic was fully developed, I performed direct vaso-epididymostomy on one side only of eleven dogs. These animals were killed two months after the operation. The vas of the side not operated on was stripped, and spermatozoa were demonstrated in each instance. The vas coming from the epididymis operated on was similarly stripped, and spermatozoa were demonstrated in ten of the eleven operations. The patency of the anastomosis is shown by the epididymograms (Figs. 9, 10 and 11).

REPORT OF CASE

A patient with bilateral epididymitis showed slight thickenings in the globus minor of both epididymides, and absence of spermatozoa from the semen. The left testicle was explored under local anesthesia, and an obstruction demonstrated in the globus minor. A direct vaso-epididymostomy, with silk for the crown stitch, was performed, *with the result that spermatozoa are now present in the semen.*

7 West Madison Street.

War Amenorrhea.—The *Norsk Magazin for Lægevidenskaben* reviews collectively a number of articles with this title which have been published in different parts of Germany, Austria and the parts of France occupied by the German troops. All comment on the great prevalence of amenorrhea during the last year or two, in otherwise apparently healthy nonpregnant women.

Military Medicine and Surgery

MEDICAL EDUCATION, MEDICAL INTERNS AND THE WAR

HORACE D. ARNOLD, M.D.
Major, M. R. C., U. S. Army
WASHINGTON, D. C.

[At the Conference on Medical Education last week, the chairman of the Council on Medical Education of the American Medical Association, Dr. H. D. Arnold of Boston, now on active service in the Surgeon-General's Office, at Washington, devoted the major portion of his chairman's address to this subject. The following is an excerpt from this address. In the introduction Dr. Arnold stated that while some of the statements he would make could be regarded as having official authority, at the same time he wished it understood that he was expressing his personal views.—Ed.]

NO LESSENING OF EDUCATIONAL REQUIREMENTS

I wish to emphasize again one point briefly mentioned in my opening remarks, namely, the importance of not lowering the standards of medical education during this period of war. This does not preclude the readjustment or rearrangement of courses, or the omission of nonessential details. But it does mean that the modern thorough training, with its broad scientific basis, must be fully maintained, if we are to make of our medical students officers who are competent to give proper care to our soldiers. We must not relax the thoroughness or the essential content of that training. The fact that the number of teachers is reduced is merely a reason for those who are left to work longer and harder. It is not a justification for weakening the instruction given.

The spirit of this war time — the cry for efficiency on the part of every individual of this nation — must not go unheeded by the medical teacher. No medical teacher is doing his full duty who is content merely to continue his teaching as it existed before the war. The newer knowledge and methods developed in this war must be taught; those aspects of every subject which will be useful for Army purposes must be emphasized; and above all, the teacher should make sure that the student masters the real essentials of his subject. In our teaching there has been a tendency to place undue emphasis on that which is new, or on that in which the teacher happens to be personally interested; and too little attention has been paid to the routine drill in fundamentals — too little thought to determine what is really essential for every medical student to know in a given subject. Critical self study should lead many teachers to drop many items of instruction which their confrères — and their students too — recognize as personal fads. The voluntary conforming to uniform, simple methods that are agreed to be efficient in Army service would be a very important step toward the more efficient training of medical officers.

MEDICAL STUDENTS AS ENLISTED MEN

Owing to the provisions of the Selective Service Regulations, it has come about that nearly all our medical students are enlisted men in the reserve corps of the Army or Navy. Since, by agreement, the regulations for those in the reserve corps of the Navy will be essentially the same as for those in the reserve corps of the Army, we may, for the sake of simplicity, speak as if all medical students were enrolled in the Army. Medical schools have in reality become Army training schools.

We should keep one point clear in our minds — and make it clear to the students. Medical students are not exempted from the draft law. They are actually in military service in accordance with the regulations under that law. They are too apt to remember simply that they are in Class V — the class that is exempt from induction into service under the draft — but to forget the wording of the regulation that gave them this classification, that "the registrant shall be placed in Class V on the ground that he is in the military service of the United States. There is no other ground on which such persons (as such) may be placed in a deferred classification."

As an enlisted man in the reserve corps of the Medical Department, a medical student is subject to call to active duty at any moment, at the discretion of the Surgeon-General. If he is left on inactive duty, it must be either because his services are not needed, or because he is to remain on inactive duty for special Army purposes. Every one of these men could be used advantageously now in the hospital corps of the Army; consequently the sole reason for leaving them on inactive duty is that they may become better trained for medical service in the Army later. Provided they show sufficient aptitude and application, this training may be continued until they are qualified to become medical officers in the Army; but it is not the inherent privilege of a medical student, as such, to continue his studies to this extent.

It follows logically that the student must have the preliminary education and training that fit him to pursue his medical studies successfully; that his course of study must be sufficiently thorough and complete to prepare him to become a satisfactory medical officer, and that he must show a capacity and application that enable him to keep pace with the progress of his class. The moment it is clear, from his failure to progress with his class or his failure to graduate, that he will not make a satisfactory medical officer, it becomes the duty of the Surgeon-General to call him to active duty in the enlisted service of the Medical Department. Here lies an incentive for the medical student to do his best work — none the less effective because it is an artificial spur.

It is the intention of the Surgeon-General—because it is for the best interests of the Army — to allow medical students one year of training after receiving the degree of M.D. This time must be spent either in gaining practical experience, as an intern, in the care of the sick; or in such advanced scientific study, in hospital or medical school, as will fit him for special scientific medical work in the Army. Students will not only be permitted to take this year of training after graduation—unless some unforeseen contingency demands their services in the ranks — but they are strongly urged to take such service if it can possibly be arranged.

The Surgeon-General feels a moral obligation to the men who have been drafted into active service, and are fighting for our country, to administer the regulations in regard to medical students strictly and conscientiously. The cooperation of the medical school authorities is expected in the same spirit. This will mean in some instances a more strict enforcement of requirements and standards than has hitherto obtained. It means the prompt removal of all entrance conditions of those already enrolled as students; the strict enforcement of entrance requirements; a uniform standard of marking, and a fair test of the student's qualifications for promotion, and uniform usage on the question of conditions as affecting admission and promotion.

The problem of conditions is a most important one, on which the advice of the medical educators is earnestly sought. Let us state it clearly once more: We have no moral right to continue one of these enlisted men on inactive duty after it is clear, from failure to pass his examinations, that he will not make an efficient medical officer. We have no right to allow the course of training to be unnecessarily prolonged. We certainly must prevent the "slackers" from delaying their entrance into active service. And yet we may be hard pressed for trained medical men, if the war lasts much longer, and we should not hastily deprive partially trained medical students of the chance to complete their training. My personal opinion is that the practical solution of this question would be to allow backward students, as a maximum, one term, or semester, extra in the whole medical course.

TEACHING THROUGHOUT THE YEAR

It seems to me that we have no moral right, in deference to the drafted men in the fighting line, to give medical students the usual summer vacation of three or four months. There is the added consideration that, if this war should last two or more years longer, we are sure to be hard pressed for medical officers for our own Army and for our allies. It may be necessary to speed up the training of our medical students. Now is the time to make plans for this, for it can be accomplished now without lowering the standards of medical training.

It would be possible to give three terms in twelve months, instead of two terms as at present, without any material detriment to the course of instruction. These terms should begin approximately on October 1, February 1 and June 1.

During the past year, 80 per cent. of the medical schools reported a school year of from thirty-three to thirty-six weeks. This is supposed to be "actual work exclusive of holidays," but this requirement is not generally fully complied with.

The plan of three terms in twelve months could be arranged on a basis of sixteen weeks to each term, with an allowance of four weeks for vacation distributed through the year — not an unreasonable requirement for enlisted soldiers. One week in each term may be allowed for examinations, leaving fifteen weeks for actual teaching—or thirty weeks of actual teaching for the school year. This is not a radical departure from actual present usage, and should be accepted, as a war measure, in view of the great advantages to be gained.

If this plan were adopted now, the present first class would be ready for service twelve months earlier than under the present plan, the second class eight months earlier, and the third class four months earlier. The senior class would not be affected.

I know that the question of summer sessions of the medical schools was discussed last spring at a meeting of the deans called by the General Medical Board of the Advisory Commission of the Council of National Defense, and that the decision was adverse. But conditions have changed since then. It seems more probable that this war may be prolonged; it is more evident that we must put larger armies in the field; the need of medical officers and of physicians for civilian practice, both for ourselves and for our allies, during and immediately after the war, is more evident than it was then; and, finally, the new draft regulations introduce a factor that could not then be taken into account.

The desirability of the general idea of speeding up medical education, without sacrifice of its quality, has the approval of the Surgeon-General. An expression of opinion from the medical educators here assembled as to its practicability and desirability would be welcomed. My own opinion is that it should be recommended to medical schools now, but should not be required of all well-recognized schools for the coming summer, but should be required thereafter. In some schools it may not be practicable to inaugurate this system for the coming summer, on such short notice. In others, the next summer term would better be allowed for students to clean up conditions and back work, so as to make a fair start in the fall.

The objection that the letter of the law in some states could not be met by such a plan does not seem to be a serious one. A state licensing board which felt obliged to enforce such a regulation ought not to find it difficult to get permission from the legislature to accept this plan temporarily, as a war measure.

REORGANIZATION OF CURRICULUM

In one respect the curriculum should be changed, so as to make it possible to have a graded intern service in the hospitals. Twelve months is considered as long a period as can regularly be allowed for intern service after graduation. If all medical students graduated at the same time, entered at once into intern service, and entered active service in the Army one year later, the system of graded interns in the hospitals would be impossible. The Surgeon-General did not feel warranted in extending the period of internship in general to a year and a half, as suggested by some institutions. The following compromise plan has been approved by the Surgeon-General, by which the hospitals can secure a graded service for interns, if the appointments are made to begin July 1, November 1 and March 1. These dates are suggested for the purpose of allowing a month—or part of a month —of vacation between graduation and the beginning of intern service.

The service beginning July 1 will naturally be supplied from the graduates in June. A certain number of those graduating in June—not to exceed one third of such graduates—may be allowed to begin a service of one year as intern as late as November 1, provided that the time between graduation and the beginning of the recognized internship, with the exception of one month allowed for vacation, is spent in a way that will improve the training of the graduate for Army purposes. A supply of candidates for internships beginning March 1 will come in part from those who graduate in February, but the remaining positions must be filled by senior medical students.

This plan will have the approval of the Council on Medical Education, and should have the approval of other authoritative bodies such as state boards, under the following conditions:

1. The curriculum of the medical school should be so arranged that the last semester consists entirely of clinical work.

2. The work of these interns should be of such a character that it may be accepted by the medical schools

as equivalent to the clinical work in the school during the last semester.

3. The medical school must agree to accept such clinical work, if satisfactorily performed, as counting toward the degree.

4. This privilege should be limited to students whose school record up to that time places them in the upper third of their class.

QUALITY OF INTERN SERVICE

The Surgeon-General must insist that the opportunities afforded interns shall be such that they will receive a satisfactory experience and training in preparation for their professional duties as medical officers in the Army. Work exclusively as clinical clerks will not be acceptable. The mere care of patients without careful study of the cases, including laboratory investigations, will not be acceptable. The opportunity to take charge of patients without adequate supervision and training by the visiting staff will not be acceptable.

It is realized that many internships, as now arranged, will not meet these requirements. For the moment, internships must be approved that do not fully meet these conditions; otherwise the organization of important hospitals would be disrupted, and the proper care of the patients would be impossible. But, if a hospital does not adjust itself to these requirements within a reasonable time, approval of the institution as an authorized place for intern service will be withdrawn, and the allotment of interns will be cut off. The experience gained in these hospitals should be at least as good as the graduate would get at an Army base hospital. We are not justified in leaving him as an intern in a civilian hospital, when he may be given a better training in an Army hospital.

MEDICAL TEACHERS

The problem of the teaching force in our medical schools has become a serious one, because so many have already volunteered for active military service, and the action of the draft threatens to remove other teachers who are regarded as essential to the satisfactory continuance of the present methods of instruction.

While we cannot but admire the patriotic response to the call of duty of those teachers who have entered active military service, we must not forget that many who remain are actuated by fully as patriotic motives, and are often performing a more difficult duty in remaining for the purpose of serving the country by continuing their teaching.

The medical teachers of draft age play a most important part in the methods of medical education adopted in recent years. The induction of these men into military service would seriously impair the efficiency of medical teaching, unless they could be at once replaced by equally satisfactory teachers. As far as is possible, such men should be replaced by others who are above the draft age; and the schools should conscientiously endeavor to meet the situation in this way as far as they can. But it is recognized that there are not enough competent men above draft age available for this purpose, and that this plan offers only a partial solution of the difficulty.

Medical teachers, as such, are not granted any privileges under the Selective Service Regulations; nor can special privileges be given to them fairly. The spirit of the draft law requires that they enter military service, when their turns come according to the draft regulations. Since very few of them are likely to be reached by the draft during the present school year, the immediate danger to the schools is not so great as has been generally thought to be the case.

Since the requirements of the draft will be met from Class I for a long time to come, we may for the present disregard those teachers who have a deferred classification. The following arrangements apply to those who are placed in Class I.

Those who have the degree of M.D. should apply for admission into the Medical Reserve Corps, if they have not already done so. They should at once accept their commissions, when offered, so that certificates may be issued under Section 151 (c), S. S. R., which will authorize their local boards to place them in Class V on the ground that they are in the military service. If the services of such a teacher are essential for the efficient instruction in the department of the medical school to which he belongs, the dean of the school should make this fact known to the Surgeon-General. This reserve officer will then be held on the inactive list, at least until the end of the present school year. If necessary, he can be kept on the inactive list for a reasonable period beyond this time, until a substitute can be found. It is not the policy of the Surgeon-General, however, to create a class of medical teachers who will be excused from active duty throughout the war.

Medical teachers who are not graduates in medicine, and are essential to the school, can be provided for until the end of the present school year, and if necessary until their places can be filled by other suitable teachers. Such teachers may be referred to the Surgeon-General for consideration by the dean of the school, and will be dealt with as the individual case warrants. Action in such cases should not be requested, however, until it is clear that the teacher in question is liable to be drafted in the near future, and the facts in regard to such liability should be clearly set forth.

It is becomnig more and more evident that the services of medical teachers in the various branches of medicine will be needed in the Army as well as in the medical schools, and that the present supply of such trained teachers is not sufficient to meet this double demand. This is especially true in the laboratory subjects. It will, therefore, be necessary to provide for the training of more teachers. For this purpose, the schools should encourage those students who are interested in the scientific branches of medicine, or who show an aptitude for such work, to accept positions in the school or hospital laboratories instead of positions as clinical interns for one year after graduation. At the end of the intern year a sufficient number of clinical interns and laboratory assistants may be retained on inactive duty to replace the medical teachers who will be called to active service in the Army. These men will in turn be called to active service as soon as their places can be satisfactorily filled by the promotion of the next set of interns and assistants; and by this system we can provide a constant supply of highly trained men for the Army both in clinical and laboratory subjects. We shall at the same time provide teachers for the medical schools.

COMBINATION OF MEDICAL TEACHERS IN MEDICAL CENTERS

It seems quite possible to me that even these plans may not provide enough teachers for all departments of medical instruction in the schools. The scarcity of teachers is more likely to be felt in the laboratory subjects. A possible solution of this difficulty may be found in the combination of the teaching force of two or more schools in a medical center for the joint instruction of medical students. The schools should consider the feasibility of such combinations, and should be prepared to make such arrangements if they become necessary.

GREATER UNIFORMITY OF CURRICULUM DESIRABLE

In the past we have discussed the desirability of greater uniformity in the schedule of the curriculum in the several medical schools with a view to facilitating the transfer of students, or of encouraging the migration of students. In looking ahead to the possible drain on the medical profession, and more especially on the medical teachers, it seems at least possible that some of the schools, especially the smaller ones or those located in the smaller communities, may be obliged to discontinue teaching for a time. Should such a contingency arise, the possibility of transferring the students to other schools, without the loss of standing or of time, should be provided for. A sufficient uniformity of schedule, year by year, to permit such transfer seems a wise provision to make at this time, and it is recommended that the schools give this matter serious consideration. Attention is called to the probability that during the war the summer vacations will no longer be available for readjustment in this respect, as has been the case in the past.

PREMEDICAL STUDENTS

By a ruling of the Provost Marshal General, it is not possible to include premedical students under the provisions of the regulations for medical students. Up to the present time this ruling has not been a serious matter, because comparatively few of these students were 21 years of age, June 5, 1917, and they are in consequence not subject to the draft law.

Even if the law is changed to include men as soon as they attain the age of 21, these students will in all probability not be reached by the draft before they complete their premedical course of training. If the medical schools will adopt the plan of accepting a first-year class on the first of next June, these students could then be matriculated and allowed to enlist in the Medical Enlisted Reserve Corps. Since they began their preparation for the study of medicine two years before this, such action could hardly be regarded fairly as an evasion of the spirit of the draft regulations. Some such arrangement is necessary, or else the supply of medical students will be cut off.

If the colleges will also adopt the plan of a summer term for the premedical students, they will enable subsequent classes to enter on their medical course before they attain the age of 21, and so the problem of the premedical students and of a supply of medical students will be settled.

Tetanus after Preventive Injection of Serum.—A. Lumière has encountered fifty-four cases of tetanus occurring in men who had been given preventive injections of antitetanus serum, and tabulates these with minute detail under eight headings in the *Annales Pasteur.* He urges the necessity for repeating the serotherapy before attempting any operation later, and relates that sodium persulphate seems to be more effectual in relieving established tetanus than magnesium sulphate, while it is only slightly toxic.

STOCK SODIUM SULPHITE SOLUTION FOR ENDO MEDIUM

OSCAR TEAGUE, M.D.
Chief of Board of Health Laboratory,
ANCON, C. Z.

With the assistance of Mr. J. E. Jacob, I have shown that a 10 per cent. solution of crystalline sodium sulphite can be heated for twenty minutes at 15 pounds pressure with practically no change, and that the 10 per cent. sodium sulphite solution covered with a layer of liquid petrolatum about 1 cm. thick and sterilized in the autoclave can be kept at room temperature for three weeks and probably much longer with but very slight change.

Such a sterilized stock solution of sodium sulphite might render the preparation of Endo agar a somewhat simpler procedure in field hospitals and base hospitals. If the liquid petrolatum carried over into the agar with the pipet is considered a disturbing element, more than the amount of the sulphite to be used should be pipetted into a sterile vessel, and the necessary portion of this should be immediately transferred to the agar with a second pipet.

The results of the titrations of the sulphite solution, before and after sterilization and after standing for various intervals of time are appended. The titrations were all done by Mr. Jacob.

TITRATIONS OF SODIUM SULPHITE SOLUTIONS

Experiment 1.—Fifteen gm. of crystalline sodium sulphite were added to 150 c.c. of distilled water in an Erlenmeyer flask, and the latter was immediately covered with a layer of liquid petrolatum about 1 cm. thick. After the sodium sulphite had gone into solution, 5 c.c. were removed for titration. The flask was then heated in the autoclave for twenty minutes at 15 pounds pressure and allowed to cool, when a second series of titrations was made. After a second heating, further titrations were made.

TABLE 1.—TITRATIONS OF 5 C.C. AMOUNTS OF THE *SOLUTION* (EXPERIMENT 1)

	Tenth-Normal Iodin C.c.		Crystalline Sodium Sulphite
Before sterilization	36.1	equivalent to....	9.10 per cent.
After first sterilization	36.75	equivalent to....	9.26 per cent.
After second sterilization	36.3	equivalent to....	9.15 per cent.

Hence practically *no change* takes place in the sodium sulphite solution during sterilization.

Experiment 2.—Fifty gm. of sodium sulphite were dissolved in 500 c.c. of distilled water, and 200 c.c. of the solution were added to each of two 500 c.c. Erlenmeyer flasks. A layer of liquid petrolatum 1.2 cm. thick was poured on the surface of the fluid in one of the flasks. Both flasks were loosely corked, heated in the autoclave twenty minutes at 15 pounds pressure, and then allowed to stand at room temperature. Five c.c. of the solution were withdrawn for each titration. The solutions were prepared, Dec. 24, 1917, and titrated at once and on the dates noted in Table 2. The figures recorded represent an average of two or three titrations.

TABLE 2.—TITRATION AFTER STANDING

Date	With Petrolatum		Without Petrolatum	
	N/10 Iodin C.c.	$Na_2SO_3.7H_2O$ Per Cent.	N/10 Iodin C.c.	$Na_2SO_3.7H_2O$ Per Cent.
Dec. 24	33.3	8.39	33.3	8.39
Dec. 27	33.1	8.34	27.1	6.83
Dec. 31	32.7	8.24	13.7	3.45
Jan. 7	32.4	8.14	6.0	1.51
Jan. 14	32.5	8.16	....	....

It is seen that in the flask without petrolatum, more than half the sulphite disappeared in one week's time, and almost all of it in two weeks. The flasks with petrolatum showed only a very slight loss after standing for three weeks.

THE ETIOLOGY AND TREATMENT OF TRENCH FOOT *

JOSHUA E. SWEET, A.M., M.D. (PHILADELPHIA)
Major, M. R. C., U. S. Army

GEORGE W. NORRIS, A.B., M.D. (PHILADELPHIA)
Major, M. R. C., U. S. Army

AND

HARRY B. WILMER, M.D. (PHILADELPHIA)
Lieutenant, M. R. C., U. S. Army

FRANCE

The usual classification of the disease known as "trench foot" is based entirely on a clinical picture. From this clinical picture also the attempt is made to deduce the etiology, and the nature of the most severe type of case is such as to seem to warrant the conclusion that the disease starts from the outside of the foot. Therefore the most common form of treatment is a purely local one.

We purpose to advance evidence which shows that the disease in all its forms starts from the interior; that the infections which often mark the course of the disease are but the natural secondary manifestations of the reaction of devitalized tissues to infective agents; and that therefore the treatment of the condition should be directed to the skin only so far as these secondary infections have resulted in surgical conditions.

We beg permission to present the line of reasoning that has led us to our conclusions. It will be evident that this reasoning is not based on known facts of physiology, in extenuation of which we point to the necessity in order to advance our present knowledge of supposing that some things we know are not true and that the rest need revision.

There is a disease of civil practice which bears a certain resemblance to trench foot. This disease is, or these diseases are, known as Raynaud's disease, intermittent claudication, erythromelalgia and thrombo-angiitis obliterans, perhaps best grouped under the generic name of the angiotrophoneuroses. Nothing is known of the etiology, much has been written, no treatment is accepted.

Some of the enthusiasts in the surgery of the blood vessels have claimed good results in this disease after performing an arteriovenous anastomosis of the femoral vessels. There is no known fact of physiology which would explain how the shifting of the blood stream from artery to vein — provided the operation really accomplishes such a result — could possibly influence the disease. Yet, when men insist on clinical results, it is often wise to consider that they may be attaining results, and that, in this instance, while their explanation does not conform to the teaching of physiology, the operation may do good in some way other than by influencing the course of the blood stream. If one assumes that the condition be due to a vasomotor spasm of the arterioles — not a new assumption — then sympathetic paralysis would overcome this spasm, and the operation of arteriovenous anastomosis would produce such paralysis because in the process of freeing the vessels for the anastomosis, the great sympathetic trunks, which run in the blood vessel sheaths, would be cut.

This line of reasoning — or guesswork — led us to attempt to discover if there is any clinical evidence of vasomotor disturbance in trench foot; and the astonishing results below appear. There is a marked increase of blood pressure in the leg in trench foot as compared with the arm.

Whether this increase in pressure is due to an excess of vasoconstrictor substance in the blood, or whether it is due to a loss of vasodilator substance, the result being the same, it would seem that increase of blood pressure reducing substance is indicated.

The opposite picture to peripheral vasoconstriction is seen in hyperthyroidism, as evidenced by the sweats, the sudden diarrheas, the flushings, perhaps also the tachycardia; therefore we have resorted to the administration of potassium iodid, which is known to stimulate the thyroid; thyroid extract is the first thought, but we had none at hand.

It may be asked why, when the edema and diapedesis of red cells comes from the capillary walls, we blame the arterioles rather than the capillaries. The reason is our finding of increased blood pressure and the spasmodic nature of the attacks of pain. Physiologists are not yet agreed as to the point in the vascular system at which the blood stream encounters the greatest resistance; but the majority opinion seems to be that it must be in the arterioles, because the blood passing the arterioles enters an area in which the total cross section is enormously increased; further, the arteriole is the only peripheral vascular structure that possesses a mechanism intrinsically capable of change. At least, no such mechanism has been demonstrated in the capillaries or in the small veins. Any change in the pressure in the arteriole would be expressed by change in the capillary blood; for as long as there is any circulation at all, there must be a plus pressure on the arterioles; even after death there must be a residuum of plus pressure in the arterial side, for the arteries are empty in the cadaver.

The circulation of blood in the veins of the foot is dependent on several factors: the driving pressure of the heart beat, the consequent filling of the system, and the resultant vis a tergo, and the action of the skeletal muscles—perhaps the most important factor in the peripheral circulation of lymph and venous blood—a factor too completely forgotten in various surgical conditions. This factor is of such importance that it is said that mere standing still will impede and may suspend the flow of blood through the feet; the value of rubbing the feet, of moving while in the trenches, is based on this consideration of physiology.

The standing still in the cold and wet may be the causal factor in trench foot, as it must be the exciting factor, in which event, however, all men should be susceptible. Since not all men under the same conditions fall victims, and since, in the men who are affected, these facts of blood pressure which we herewith demonstrate are to be found, we feel compelled to the conclusion that trench foot is a disease incited by the effect of cold and inaction on a foot whose vasomotor system is physiologically impaired; and therefore also more rarely we encounter a "trench hand" and "trench knees."

Our explanation of trench foot, based on our reasoning and our findings, is that there is in the arterioles of the foot an incomplete spasm; if the contraction were complete, the pressure would be thrown back to the heart and be immediately equalized or

---

* From No. 16 (Philadelphia, U. S. A.) General Hospital, B. E. F.

compensated. An incomplete spasm would afford a resistance to the pulse wave, which would be expressed as a localized increase of blood pressure. The first result of this arteriole spasm is ischemia with numbness, tingling and burning pain; the second result is a disturbance of capillary circulation, perhaps due to back pressure from the veins, perhaps due to the loss of rhythmicity of the driving force, perhaps to mere stagnation, with swelling of the foot from edema and diapedesis of red cells. This results in devitalization of the skin and the favoring of infectious processes, and may extend to actual gangrene.

It is evident that much work is needed to clarify the problem. We venture this preliminary report because of the importance of the facts shown, and because we are convinced that potassium iodid is a most important addition to the treatment of trench foot, for the prompt alleviation of pain, if for no other reason. We anticipate that the first reaction on the part of every one who has seen a trench foot or who is familiar with the prophylactic treatment in use will be one of amusement. We ask only that our results be controlled — blood pressure estimations are simple, potassium iodid is a harmless drug — before the reader starts to sharpen the barbs of the arrow of criticism.

In normal persons lying horizontally, blood pressure in the arm and leg is practically equal. On assuming the standing posture, blood pressure in the arteries of the lower extremity rises in exact proportion to the weight of the hydrostatic column of blood. This increase is approximately 2 mm. for each inch.

In many cases of aortic insufficiency, especially in those in whom compensation is good, the leg pressure definitely exceeds the arm pressure, even in recumbency. So far as we are aware, this is the only condition heretofore known in which such a pressure difference is commonly if not constantly present.

Our readings were made with two different types of aneroid sphygmomanometer. They were made with the patient recumbent and relaxed, first on the leg and then on the arm. The usual clinical precautions were taken to eliminate avoidable errors. The auscultatory method was used, the systolic pressure being read at the first regular appearance of sound, and the fifth phase being chosen as the diastolic criterion. The fifth phase rather than the fourth was chosen, owing to the difficulty of identifying the onset of the fourth phase in an artery so small, and accessible to the stethoscope with so much difficulty, as the posterior tibial. In a few cases readings had to be made from the dorsalis pedis, owing to the topography of the posterior tibial artery. We attach far less weight to our diastolic readings in the leg, as some of them were obtained with difficulty and occasionally uncertainty. The systolic readings, however, we believe to be clinically accurate.

Clinical and experimental investigation has shown that the iodids exert no direct action on blood pressure. Although frequently prescribed in cases of arterial hypertension, they are beneficial chiefly in syphilitic persons, and even in these, their action is indirect, and their blood pressure lowering effect slight.

The number of cases of trench foot in which we have made blood pressure estimations to date is fifty-three. Pressures were also taken on eight other persons not suffering with trench foot, these to be used as controls.

With but one exception, an inequality of the leg and arm pressure was found in the fifty-three cases of trench foot, consisting in a very definite increase of the leg over the arm pressure. In the one exception the arm pressure exceeded the leg pressure, after forty-eight hours reverting to the condition found in the other fifty-two cases. In the eight cases used as controls, the pressure was found equal in the arm and leg.

The leg pressure was also found increased in direct proportion to the severity of the case.

As the patient's condition improved, the pressure was found to drop, or in some instances, few in number, the arm pressure would rise, and by the time the patient had recovered, the arm and leg pressure had become equal; thirteen cases so far have been observed which show this phenomenon. These thirteen cases, together with the eight that had other conditions, justify the conclusion that the differences observed in trench foot cannot be ascribed to some technical fault in our blood pressure readings. The differences in arm and leg pressures are as follows: the maximum, 30 mm.; the medium, from 15 to 20 mm.; the minimum, from 8 to 10 mm. In thirty-one cases, potassium iodid in 20 grain doses three times daily was given, with the result that there was a decided relief of pain in twenty-four hours after the first dose had been given. There was also coincidently with the relief of pain in many of the cases a fall of pressure, an average drop of the leg pressure of from 10 to 15 mm.

In all of the thirty-one cases the potassium iodid was withheld for twenty-four hours on three occasions. The complaint from the patient, the following morning, was increased pain and insomnia. In some cases the dose of potassium iodid was increased to 30 grains three times daily, as 20 grains did not seem sufficient to control the pain.

We have not used sodium bromid, Dover's powder, morphin sulphate or any other form of hypnotic in twenty-nine out of the thirty-one cases. The potassium iodid seemed more beneficial in the relief of pain than any of the above mentioned drugs. The two remaining patients were given 5 grains each of Dover's powder at night for four consecutive nights. Both of these patients were severely affected; one had a gangrenous degeneration of the small toe and the other case marked discoloration and blisters of both feet. One of the twenty-nine cases in which potassium iodid alone was given was also a severe type with marked discoloration and blebs of both feet. The potassium iodid was sufficient in this case to control the pain.

It must not be understood that the relief from pain is absolute, but we feel thoroughly convinced from comparing the causes treated with potassium iodid with others treated by the ordinary methods that the relief is greater in the cases in which the potassium iodid alone has been given, and that the duration of the attack is markedly shortened.

The only other treatment used in these cases has been hot water bottles to the soles, boric powder dusted on the feet, and flannel bandages.

REPORT OF CASES

Case 1.—Private Riley, aged 20, trench foot, severe; blood pressure, systolic and diastolic: leg, 158, 80; arm, 132, 62.

Case 2.—Private Donin, aged 27, trench foot, moderate; blood pressure: leg, 145, 90; arm, 126, 65.

CASE 3.—Private McVoy, aged 35 trench foot, well; blood pressure: leg, 142, 70; arm, 138, 40.

CASE 4.—Sergeant Rhoades, aged 26, trench foot, slight numbness; blood pressure: leg, 125, 60; arm, 123, 65.

CASE 5.—Private Berry, aged 27, trench foot, well; blood pressure: leg, 130, 65; arm, 130, 70.

CASE 6.—Private Houghton, aged 21, trench foot, moderate; blood pressure: leg, 132, 80; arm, 105, 50.

CASE 7.—Private Grieves, aged 26, trench foot, very severe; blood pressure: leg, 160, 90; arm, 120, 85; Captain K's service.

CASE 8.—Private Sawton, aged 23, trench foot, severe; blood pressure: leg, 165, 90; arm, 120, 85; Captain K's service.

CASE 9.—Private English, aged 23, trench foot, severe; blood pressure: leg, 150, 85; arm, 120, 70.

CASE 10.—Private Danks, aged 24, trench foot and pyrexia of unknown origin, mild; blood pressure: leg, 130, 80; arm, 115, 75.

CASE 11.—Private Lang, aged 19, trench foot, mild; blood pressure: leg, 130, 80; arm, 125, 60.

CASE 12.—Private Partridge, aged 23, trench foot, severe; blood pressure: leg, 152, 90; arm, 120, 80.

CASE 13.—Private Coates, aged 31, trench foot, moderately severe; blood pressure: leg, 122, 85; arm, 105, 55.

CASE 14.—Private Cain, aged 19, trench foot, slight; blood pressure: leg, 120, 70; arm, 120, 60.

CASE 15.—Private Cartright, aged 26, trench foot, severe; blood pressure: leg, 148, 80; arm, 130, 80.

CASE 16.—Private Goodleman, aged 29, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 115, 60.

CASE 17.—Private Walters, aged 27, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 110, 60.

CASE 18.—Private Smith, aged 22, trench foot, moderately severe; blood pressure: leg, 120, 70; arm, 110, 60.

CASE 19.—Private Porter, aged 26, trench foot, well; blood pressure: leg, 110, 60; arm, 110, 60.

CASE 20.—Private Fielding, aged 31, trench foot, moderately severe; blood pressure: leg, 140, 80; arm, 105, 60.

CASE 21.—Private Lewis, aged 22, trench foot, mild; blood pressure: leg, 110, 60; arm, 100, 70.

CASE 22.—Private Cornwell, aged 27, trench foot, mild; blood pressure: leg, 130, 70; arm, 120, 55.

CASE 23.—Private Huckins, aged 23, trench foot, moderately severe; blood pressure: leg, 130, 60; arm, 125, 58.

CASE 24.—Private McMann, aged 20, trench foot, mild; blood pressure: leg, 130, 80; arm, 120, 70.

CASE 25.—Private Chambers, aged 24, trench foot, mild; blood pressure: leg, 138, 80; arm, 128, 70.

CASE 26.—Private Jackson, aged 24, trench foot, well; blood pressure: leg, 120, 65; arm, 120, 63.

CASE 27.—Private Porter, aged 24, trench foot, well; blood pressure: leg, 130, 80; arm, 126, 70.

CASE 28.—Private Lovett, aged 23, trench foot, well; blood pressure: leg, 130, 70; arm, 130, 70.

CASE 29.—Private Jenkins, aged 25, trench foot. Dec. 8, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 105, 70.

CASE 30.—Private Allford, aged 25, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 140, 78; arm, 138, 75. November 9, better; blood pressure: leg, 135, 80; arm, 130, 75.

CASE 31.—Private Potter, aged 20, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 132, 80; arm, 130, 80. November 9, worse; blood pressure: leg, 138, 90; arm, 118, 70. November 14 better; blood pressure: leg, 120, 75; arm, 108, 68.

CASE 32.—Private Martine, aged 20, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 115, 70. November 14, same; blood pressure: leg, 135, 85; arm, 115, 80. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 135, 70; arm, 120, 65.

CASE 33.—Private Patterson, aged 21, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 120, 84; arm, 112, 60. November 9, worse; blood pressure: leg, 130, 85; arm, 120, 65. November 14, potassium iodid, twenty-four hours; improved; blood pressure: leg, 108, 80; arm, 110, 60.

CASE 34.—Private Wells, aged 26, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 152, 90; arm, 120, 80. November 9, improved; blood pressure: leg, 143, 70; arm, 120, 65. November 10, same; blood pressure: leg, 143, 90; arm, 128, 75.

CASE 35.—Private Snowden, aged 23, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 130, 75; arm, 115, 60. November 9, greatly improved; blood pressure: leg, 122, 75; arm, 108, 75. November 14, much better; up; blood pressure: leg, 110, 60; arm, 110, 70.

CASE 36.—Private Lincoln, aged 26, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 122, 60; arm, 108, 60. November 14, better; blood pressure: leg, 125, 70; arm, 110, 70. November 23, well; potassium iodid, four days; blood pressure: leg, 130, 80; arm, 130, 80.

CASE 37.—Private Moorhead, aged 25, trench foot. Nov. 18, 1917, severe; potassium iodid; moderate; blood pressure: leg, 130, 80; arm, 98, 50. November 20, better (T. B.); blood pressure: leg, 115, 70; arm, 115, 30.

CASE 38.—Private Fuller, aged 27, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 110, 80; arm, 100, 60. November 20, well; blood pressure: leg, 110, 80; arm, 112, 80.

CASE 39.—Private Lambert, aged 30, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm, 130, 70. November 19, pain less; blood pressure: leg, 130, 95; arm, 128, 80.

CASE 40.—Private Gittings, aged 25, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 125, 65; arm, 100, 70. November 20, better; blood pressure: leg, 118, 60; arm, 98, 50.

CASE 41.—Private Ray, aged 26, trench foot. Nov. 19, 1917, moderately severe; blood pressure: leg, 130, 90; arm, 100, 60. November 23, better; potassium iodid, twenty-four hours; blood pressure: leg, 128, 80; arm, 110, 65.

CASE 42.—Private Fielding, aged 23, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm, 105, 60. November 30, great improvement; blood pressure: leg, 125, 80; arm, 120, 80.

CASE 43.—Private Carter, aged 25, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 160, 100; arm, 130, 75. November 19, less pain; blood pressure: leg, 150, 100; arm, 130, 70. November 20, same; blood pressure: leg, 150, 100; arm, 128, 70. November 27, worse; increased potassium iodid; pyrexia of unknown origin; complications; blood pressure: leg, 157, 90; arm, 140, 80. December 2, better; blood pressure: leg, 135, 80; arm, 130, 70.

CASE 44.—Private Gee, aged 26, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 120, 80; arm, 115, 65. November 21, well; blood pressure: leg, 100, 50; arm, 100, 50. November 24, cough and pyrexia of unknown origin; complications; blood pressure: leg, 110, 60; arm, 110, 60. November 27, fever; pyrexia of unknown origin; increased pain in ankle; blood pressure: leg, 125, 80; arm, 118, 80. December 3, worse; England; blood pressure: leg, 125, 90; arm, 116, 80.

CASE 45.—Patient Collier, aged 29, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 138, 80; arm, 118, 62. November 9, pain more pronounced; blood pressure: leg, 138, 80; arm, 125, 60. November 10, pain greatly increased; blood pressure: leg, 155, 95; arm, 128, 65. November 16, potassium iodid, twenty-four hours; intense headache; nausea; vomiting; blood pressure: leg, 180, 90; arm, 180, 80. Urine examination, trace of albumin; otherwise negative; England.

CASE 46.—Private Martin, aged 26, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 140, 90; arm, 128, 80. November 9, pain more severe; blood pressure: leg, 151, 85; arm, 138, 85. November 10, nitroglycerin, 1/100 grain; same; blood pressure: leg, 150, 85; arm, 128, 85. November 11, nitroglycerin, 1/50 grain; blood pressure: leg, 150, 90; arm, 118, 75. November 14, better; blood pressure: leg, 140, 90; arm, 120, 80. November 16, [illegible] iodid, twenty-four hours; blood pressure: leg.

November 19, up; no pain; blood pressure: leg, 132, 60; arm, 132, 70.

Case 47.—Private Dove, aged 25, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 135, 65; arm, 120, 60. November 9, better; blood pressure: leg, 100, 30; arm, 90, 50. November 14, same; blood pressure: leg, 110, 80; arm, 100, 50. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 125, 65; arm, 122, 60. November 19, no pain; up; blood pressure: leg, 110, 65; arm, 110, 60. November 23, well; up; blood pressure: leg, 110, 60; arm, 110, 60.

Case 48.—Private Dawson, aged 22, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 125, 65. November 9, worse; more pain; blood pressure: leg, 150, 90; arm, 125, 65. November 14, much better; blood pressure: leg, 138, 60; arm, 130, 70. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 130, 80; arm, 130, 80. November 19, slight pain in legs; up; blood pressure: leg, 140, 80; arm, 140, 80. November 23, some stiffness in ankle; blood pressure: leg, 120, 80; arm, 130, 70.

Case 49.—Private Brownhall, aged 20, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 120, 60. November 9, improved; potassium iodid; blood pressure: leg, 140, 90; arm, 120, 60. November 14, better; blood pressure: leg, 120, 80; arm, 110, 70. November 16, better; blood pressure: leg, 123, 70; arm, 122, 70. November 19, no pain; up; blood pressure: leg, 130, 80; arm, 130, 70.

Case 50.—Private Watson, aged 23, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 140, 80; arm, 138, 70. November 20, better; blood pressure: leg, 140, 70; arm, 128, 60. November 24, potassium iodid increased; gangrene worse; blood pressure: leg, 170, 100; arm, 138, 70. December 1, better; blood pressure: leg, 158, 100; arm, 120, 70. December 2, better; thyroid extract, 5 grains; blood pressure: leg, 170, 110; arm, 130, 80. December 3, better; up; blood pressure: leg, 150, 110; arm, 130, 80. December 10, gangrene improved; walking; blood pressure: leg, 150, 90; arm, 135, 80.

Case 51.—Private Shatwell, aged 20, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 100, 50; arm, 80, 40. November 24, worse; blood pressure: leg, 160, 80; arm, 120, 60. November 27, better; blood pressure: leg, 145, 100; arm, 120, 69. December 1, potassium iodid stopped; better; blood pressure: leg, 138, 90; arm, 110, 60. December 3, thyroid extract, twenty-four hours; no pain; blood pressure: leg, 140, 100; arm, 117, 65. December 10, no pain; walking; blood pressure: leg, 120, 70; arm, 120, 70. December 11, walking; shoes; blood pressure: leg, 120, 70; arm, 120, 80.

Case 52.—Private Cain, aged 19, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 130, 50; arm, 150, 70. November 19, pain better; blood pressure: leg, 145, 90; arm, 150, 70. November 20, better; blood pressure: leg, 152, 100; arm, 150, 80. November 23, better; blood pressure: leg, 150, 100; arm, 138, 80. November 24, better; blood pressure: leg, 140, 100; arm, 130, 70. November 27, improved; [illegible] 130, 65. [illegible] thyroid extract; blood pressure: leg, 150, 95; arm, [illegible] December 1, better; blood pressure: leg, 135, 90; arm, 120, 60. December 2, improving; blood pressure: leg, 128, 80; arm, 130, 50. December 3, sleeping all night; up; blood pressure: leg, 125, 90; arm, 127, 60.

Case 53.—Private Dunning, aged 26, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 85; arm, 110, 65. November 26, same; blood pressure: leg, 130, 70; arm, 100. 60. December 1, less pain; blood pressure: leg, 138, 80; arm, 100, 50. December 2, better; thyroid extract, 2 ds.; blood pressure: leg, 128, 80; arm, 110, 70. December 3, better; blood pressure: leg, 110, 80; arm, 98, 60. December 7, up walking; blood pressure: leg, 110, 75; arm, 105, 70.

CONTROLS

Case 54.—Private Jones, aged 27, myalgia. November 7, 1917, blood pressure: leg, 148, 80; arm, 148, 80.

Case 55.—Private Mitcham, aged 25, gunshot wound; spinal cord paralysis. Nov. 7, 1917, blood pressure: leg, 80, 42; arm, 80, 42.

Case 56.—Private Isted, aged 27, arthritis; blood pressure: leg, 135, 75; arm, 132, 75.

Case 57.—Private Horth, aged 24, neurasthenia; shell shock; blood pressure: leg, 110, 80; arm, 112, 68.

Case 58.—Private Brown, aged 26, phthisis; blood pressure: leg, 130, 70; arm, 130, 70.

Case 59.—Private Holmes, aged 23, gunshot wound of leg; blood pressure: leg, 120, 70; arm, 120, 70.

Case 60.—Private Cooper, aged 27, Raynaud's disease. November 27, 1917, affecting feet; blood pressure: leg, 145, 80; arm, 130, 80. November 30, no attack; blood pressure: leg, 130, 80; arm, 130, 80.

Case 61.—Private Newton, aged 23, dermatitis exfoliativa of feet and leg; blood pressure: leg, 128, 80; arm, 128, 80.

EPIDEMIC CEREBROSPINAL MENINGITIS AT CAMP McCLELLAN

E. M. MEDLAR, M.D. (BOSTON)
Major, M. R. C., U. S. Army.
CAMP MCCLELLAN, ANNISTON, ALA.

The preliminary report by Major Herrick[1] on the epidemic of meningitis at Camp Jackson calls attention to the incorrectness of the generally accepted view that epidemic cerebrospinal meningitis is primarily a meningitis. His view, that it is a secondary involvement of the meninges, appears to be the correct conception, and it is my purpose here to emphasize, from observations made at Camp McClellan, the importance of his conclusions.

As far as is known, all meningitis, exclusive of traumatic meningitis and brain abscess, is secondary to hematogenous infection. This is common knowledge with regard to tuberculous, pneumococcic, streptococcic, staphylococcic, influenzal, typhoidal and anthrax meningitis. That meningococcic meningitis should also fall into this class is but a logical deduction because of the fact that blood cultures are often positive early in the disease, while later they are very rarely positive. It is probable that if seen early enough, all cases of meningococcic meningitis would give positive blood cultures.

A point of interest relative to the increase of carriers among the soldiers here in camp has been noted. In the month of November and December, from 3 to 6 per cent. of carriers were found. During the month of January, this has risen to from 12 to 20 per cent. in about 3,000 cultures made. While there has been this large increase of carriers, there has been no appearance of an epidemic, although there has been an increase of sporadic cases. In only one instance has more than one case of meningitis developed in one company, while from some of the companies as high as forty carriers have been found. Though it has not been possible to follow up accurately, it has been noted that there has been an epidemic of sore throats synchronous with the increase of the numbers of carriers. In at least half a dozen cases it has been observed that men with severe pharyngitis showed on culture large numbers of meningococci, and that on the pharyngitis clearing up they quickly became free from the organisms. In other words, it is probable that the initial meningococcic infection is a nasopharyngitis, which may be mild or severe in character. It is likely that, just as in streptococcic throat infections, the large majority remain local infections, while a few develop systemic infections. And it is likely that the cases of meningeal infection arise from these. It may also be true that not all cases that develop hematogenous infection develop meningitis, just as not all cases of pneumococcic systemic infection develop infection of the meninges.

---

[1] Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., Jan. 26, 1918, p. 227.

Cultures of the nasopharynx of the cases of meningitis treated at the base hospital at Camp McClellan have shown that some harbor the meningococcus in their throats and that others do not. The fact that in some cases the meningococcus could not be recovered from the throat lends support to the belief that the original infection was a sore throat which cleared up before the meningitis developed. Two cases having a direct bearing on this point have been observed at the hospital. Both patients had an acute pharyngitis from which cultures were made for diphtheria. No diphtheria bacilli were found on culture, but it was noted at the time that there was a large predominence of gram negative diplococci. At the time not a great deal of attention was paid to this observation. The throat condition cleared up, and a few days later both patients developed meningococcic meningitis, as was proved by the laboratory findings. These two cases emphasize the point that the probable primary focus of infection was the acute pharyngitis, which cleared up before the meningeal involvement occurred. It also lends support to the early use of antimeningococcic serum early in the disease, as suggested by Major Herrick.

It is probable that the study of the meningococcus carriers will develop facts now known with regard to diphtheria carriers — that there are temporary and also chronic carriers. This has been noticed in the work done here. It has also developed that it is difficult to free the meningococcus carriers from meningococci, just as it is hard to free the diphtheria carriers. From an epidemiologic point of view, it is essential to have these chronic carriers placed in quarantine and kept there until they are entirely free from meningococci. To isolate these carriers effectually, cultures of the whole command should be made carefully and systematically, regardless of whether or not there is any meningitis in camp; for, once the carriers are removed, the danger of having an epidemic is over.

As it is definitely known that meningococcus infection spreads by contact, there are four classes of men in the Army of whom cultures should be systematically made at least once every two weeks:

1. Those coming in direct contact with known cases of meningitis, that is, ward surgeons, nurses and orderlies.
2. All oral, nose and throat surgeons, because of their intimate dealings with the tissues that harbor the organism.
3. Dental surgeons, because of their proximity to the patient in doing their work.
4. All anesthetists, for the same reason as that which obtains for the dental surgeons.

The reasons for such cultures are twofold: First, to prevent the spread of the meningococcus from one patient to another, and, second, to protect the individual personally. It is also suggested that all of the foregoing persons be required to spray the nose and throat with a suitable disinfectant to prevent their becoming harborers of the meningococcus.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BARBITAL.—Diethyl-barbituric Acid.—Acidum. Diaethyl-Barbituricum.—Diethyl Malonyl Urea.—Malo-Urea.—2, 4, 6-trioxy-5-diethyl pyrimidin, $CO(NH\text{-}CO)_2C(C_2H_5)_2$.

Actions, Uses, Dosage, Physical and Chemical Properties.—The same as those of veronal (see New and Nonofficial Remedies, 1917, p. 86).

Barbital-Abbott.—A brand of barbital complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 782,739 (Feb. 14, 1905; expires 1922) by license of the U. S. Federal Trade Commission.

MERCURIC BENZOATE.—Hydrargyri Benzoas.—Hydrargyrum Benzoicum. — $Hg(C_6H_5COO)_2+H_2O$. — The mercuric salt of benzoic acid.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1917, p. 188.

Mercury Benzoate-Merck.—A brand of mercuric benzoate.

Manufactured by Merck and Company, New York. No. U. S. patent or trademark.

CHLORCOSANE.—A liquid obtained by chlorinating solid paraffin. It contains about 50 per cent. of chlorine in stable combination.

Actions and Uses.—Chlorcosane is used as a solvent for dichloramine-T. With it solutions containing up to 8 per cent. may be prepared.

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Chlorcosane is prepared according to the process of H. D. Dakin: paraffin, having a melting point of 50 C. or higher, is melted and, while the liquid is maintained at a temperature between 125 and 140 C., chlorine is passed in until the weight of the paraffin has increased from 45 to 55 per cent. The resulting liquid, while still warm, is agitated with 5 per cent. of its weight of dry sodium carbonate and filtered.

Chlorcosane is a yellowish, oily liquid, odorless, tasteless and neutral to litmus. *Its specific gravity is 1 to 1.04 at 15 C.*

The chlorine of chlorcosane is not readily removed by treatment with boiling solutions of alkalies and does not react with metallic magnesium suspended in ether. When heated with soda lime to 250 C. unsaturated hydrocarbons and a small proportion of fatty acid are produced. When chlorcosane is boiled with anilin, most of its chlorine is removed.

BETANAPHTHYL SALICYLATE.—Betanaphtholis Salicylas.—$C_6H_4.OH.CO.O.(C_{10}H_7)$.—The salicylic acid ester of betanaphthol.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1917, p. 198.

Betanaphthyl Salicylate (Calco).—A brand of betanaphthyl salicylate.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

ACETYLSALICYLIC ACID (See N. N. R., 1917, p. 265).

Acetylsalicylic Acid-Merck.—A non-proprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Merck & Co., New York.

CHLORAZENE (See New and Nonofficial Remedies, 1917, p. 140).

The following dosage form has been accepted:

Chlorazene Surgical Powder.—An impalpable powder composed of chlorazene 1 per cent., zinc stearate 10 per cent. and sodium stearate 89 per cent.

Support the Modern Physician.—We have a science of hygiene, but we live by the health code of the middle ages. The enlightened physician of today would broaden his field of individual "cure;" would give skilled service in the common interest for the common good; would prevent, not cure; would substitute health for sickness, vigor for weakness. Is he supported even by the intelligent?—Oscar Dowling,

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, FEBRUARY 16, 1918

Last week a blue slip was inserted in The Journal for dues and subscription. In the same issue we stated that by inserting this slip we were again trying to save the expense of sending out bills, that a good percentage had already responded to a former similar notice, and that this slip was inserted with the hope that many more would remit without waiting for the usual individual bill. We emphasize again that those who have already remitted should disregard the slip.

INFECTION WITH THE ROUNDWORM ASCARIS

The usually accepted conception of the origin of ascariasis, or eelworm infection, in man and the pig attributes it to ingestion of the egg of the parasite *Ascaris lumbricoides*. Stiles[1] stated ten years ago that the eggs escape in the feces, and slowly (in from one to several months, according to conditions) develop embryos. No intermediate host is believed to be required, at least for *Ascaris lumbricoides* or the canine eelworm *Toxocara canis*, as it is in the case of certain other well known zooparasitic infections. It was maintained that when the developed eggs are swallowed, either in contaminated food or in water, or from hands soiled with dirt containing the eggs, the embryo develops directly to the adult stage. Drinking water and fruits, especially, are blamed for carrying the parasite to man. Stiles states that he has bred common house-flies in a dish containing eggs of the eelworm of hogs, a parasite closely allied to that of man, and later found the eggs in the intestine of the adult flies. According to Stiles, therefore, it would seem that flies, by breeding in privies, might act as disseminators of the lumbricoid worm in man.

In a series of notable papers on the life history of *Ascaris lumbricoides*, the common intestinal roundworm of man, and the closely related if not identical parasites (*A. suum* or *A. suilla*) occurring in the intestine of pigs, Capt. F. H. Stewart[2] of the Indian Medical Service has come to a conclusion somewhat at variance with current opinion. He failed in his attempts to infect pigs, but found that if rats or mice were fed *Ascaris* eggs, the eggs hatched in the alimentary tract, and the embryos migrated to the liver, spleen and lungs. In the course of their migrations they increased in size and passed through certain developmental changes, many of them finally reaching the alimentary tract again by way of the lungs, trachea and esophagus. The young worms that succeeded in regaining the alimentary tract did not continue their development, and soon passed out of the body in the feces, so that rats or mice surviving the pneumonia commonly caused by the invasion of the lungs became free of the parasite as early as the sixteenth day after infection. Stewart concluded that it is necessary in the life cycle for the eggs to be swallowed by rats or mice, and that in these animals the embryos hatching from the eggs undergo certain migrations and developmental changes, after which they may be transferred in the feces or saliva of the rats or mice to food or other materials likely to be ingested by human beings or pigs, and thus ultimately reach their final hosts.

The importance of an accurate understanding of the mode of infection with *Ascaris* is obvious. It is one of the most common parasites of man, and may occur at any age. In an examination of more than 3,000 persons, Stiles found *Ascaris* in about 0.5 per cent. A repetition of the essential features of Stewart's work has been undertaken in the Bureau of Animal Industry at Washington by Ransom and Foster.[3] They too find that the development of *A. lumbricoides* and closely related forms is direct, and that no intermediate host is required. The eggs, when swallowed, hatch out in the alimentary tract; the embryos, however, do not at once settle down in the intestine, but migrate to various other organs, including the liver, spleen and lungs. Within a week, in the case of the pig *Ascaris*, the migrating larvae may be found in the lungs, and have meanwhile undergone considerable development and growth. From the lungs the larvae migrate up the trachea and into the esophagus by way of the pharynx, and this migration up the trachea may already become established in pigs, as well as in artificially infected rats and mice, as early as a week after infection. On reaching the alimentary tract a second time after their passage through the lungs, the larvae, if in a suitable host, presumably settle down in the intestine and complete their development to maturity; if in an unsuitable host, such as rats and mice, they soon pass out of the body in the feces. Heavy invasions of the lungs by the larvae of *Ascaris* produce a serious pneumonia which is frequently fatal in rats and mice, and apparently caused the death of a young pig one week after it had been fed with numerous *Ascaris* eggs.

---

[1] Stiles, C. W.: Osler's Modern Medicine, 1907, **1**, 597.

[2] Stewart, F. H.: On the Life-History of Ascaris Lumbricoides, Brit. Med. Jour., 1916, **2**, 5; The Life-History of Ascaris Lumbricoides, ibid., p. 474; Further Experiments on Ascaris Infection, *ibid.*, *p.* 486; On the Life-History of Ascaris Lumbricoides, ibid., p. 753; On the Development of Ascaris Lumbricoides Lin. and Ascaris Suilla *Duj. in the Rat and Mouse, Parasitology*, 1917, **9**, 213.

[3] Ransom, B. H., and Foster, W. D.: Life History of Ascaris Lumbricoides and Related Forms, Jour. Agric. Research, 1917, **11**, 395.

Ransom and Foster venture to believe, further, that ascarids are frequently responsible for lung troubles in children, pigs and other young animals. The fact that the larvae invade the lungs as well as other organs beyond the alimentary tract and can cause a serious or even fatal pneumonia indicates that these parasites are endowed with greater capacity for harm than has heretofore been supposed.

The relative greater frequency of *Ascaris* infection in childhood and youth is well known. The susceptibility greatly decreases as the host becomes older, so that in adult man the infection is comparatively much rarer.

THE CAUSE OF DEATH

The dictionary defines death as the cessation of all vital phenomena without capability of resuscitation. It is a manifestation in which every physician is inevitably interested, because he is frequently brought face to face with its seemingly invincible character; yet one will search the textbooks of medicine and physiology in vain to find an exposition of the precise and immediate cause of death. It has often been remarked, let us admit, that in ultimate analysis life has only two legs to stand on, namely, the heart and the lungs. This applies as well to the body as a whole, which demands appropriate circulation and ventilation of its blood to permit the continuance of its functions. But the scientific mind demands a more profound answer to the question of death. What sort of biologic change determines the cessation of the heart beat? What local alterations in the tissues occasion the omission of those nervous impulses that emanate from the respiratory center and control the indispensable act of breathing?

Perhaps we shall not go far astray if we seek the essential feature characterizing the death of the body as a whole in a single factor, the death of the respiratory center. The reason for giving preeminence to this seemingly small and restricted area is now patent to students of physiology. No tissue of the body is so sensitive to lack of oxygen as is the nervous tissue. The muscles can survive the effects of a deficient circulation and consequent impaired tissue respiration for hours and perhaps days. Even the excised heart that has ceased to contract for some time may be made to resume its rhythmic muscular performance on restoration of a suitable perfusion fluid, which need not even be blood. Not so with the nervous system, of which the respiratory center is a part. At best it can survive the lack of oxygen for only a few minutes before an irreversible failure of function sets in. The outcome is fatal; recovery is impossible. Asphyxiated nerve cells have lost the power of recuperation forever.

A recent investigator of the immediate cause of death, Dr. Whitney[1] of the Department of Medicine at the University of California, has pointed out, in emphasizing the primal importance of the respiratory center, that although respiration fails in the great majority of cases many minutes before the heart stops beating, this is not invariably the precise sequence. In certain cases, as he reminds us, circulatory conditions may be the primary cause of death, with failure of the respiration following immediately from lack of blood supply to the center. Thus, trauma to the heart, ventricular fibrillation, and perhaps other abnormalities of the heart-beat mechanisms may bring death, as well as peripheral causes.

Without considering the primary failure in blood supply to the respiratory center, the obvious lack of oxygen in various types of asphyxia, or an actual trauma of the center through mechanical injury, we may still ask, How is the failure of respiration brought about? It is natural to think of the result as due to some poison acting on the respiratory center. Drugs are known to stimulate or depress it. May not the genesis of unusual substances or the abnormal abundance of normal cell constituents be the decisive factor in permanently inhibiting this vital tissue? The accumulation of subtle poisons in the body in certain morbid states has often been postulated. Whitney[1] has given a more concrete trend to this belief by associating the moment of death with a very marked acidosis.

The effect of acids on the respiratory mechanism has formed the theme of numerous investigations in recent years, and the interrelations concerned have repeatedly been reviewed in The Journal.[2] The mechanism for the regulation of the acid-base equilibrium is usually so efficient that a rise in hydrogen ion concentration in the blood—an effective stimulus to the respiratory center—is rarely more than a transitory phenomenon. When acidosis becomes far more marked, however, owing to a failure in elimination of acid radicals or an undue production of them, the compensatory mechanism may ultimately break down. The primary stimulating effect of a certain degree of acidity ends in the paralysis produced by a higher concentration. The parallel between the symptoms of death in experimental acidosis, brought about by greatly increasing the hydrogen ion content of the blood, and in many clinical cases, has been drawn by Whitney. As death approaches, the breathing becomes more rapid and deeper, until dyspnea is violent; then rather suddenly there follows a break into a gasping, irregular respiration, less and less effective in keeping down the rapidly mounting carbon dioxid of the blood, and eventually respiratory paralysis.

---

[1] Whitney, J. L.: Studies on Acidosis, Arch. Int. Med., December, 1917, p. 931.

[2] Responses of the Respiratory Center, editorial, The Journal A. M. A., Dec. 11, 1915, p. 2089; Alveolar Air and Acidosis, March 18, 1916, p. 896; The Estimation of Acidosis Under Clinical Conditions, May 5, 1917, p. 1327; The Newer Conception of Acidosis, Aug. 25, 1917, p. 646; Carbon Dioxid and the Regulation of Respiration, Sept. 1, 1917, p. 735.

It remains to be ascertained whether in cases of natural death there actually occurs an acidosis measurable in amount and comparable with what is necessary to evoke the similar symptoms of experimental acidosis. According to Whitney's studies, this need no longer be debated. An accurate examination of the blood carbonates by Van Slyke's method in many persons at the time of death showed that in a large number of instances an acidosis of such marked degree was present that it may well have caused the death. Since however, this was not invariably the case, it must be concluded that other toxic factors as well as acidity may operate to stop life. Among the group that failed to evince a fatal acidosis are included certain obscure toxemias seen with intestinal obstruction, malignant tumors, and pernicious anemia. Infections, on the other hand, seem to have a marked influence in causing acidosis. Perhaps this will explain the fact, so familiar to the clinician, that death does not attend many severe chronic cases, including kidney incompetence, circulatory failure and malignant conditions, until a so-called terminal infection sets in. As Whitney explains it, perhaps these abnormalities cannot unaided furnish the toxin that is necessary to paralyze the respiratory center; this poison must be furnished in the majority of cases by an infection for which the underlying chronic process has prepared a favorable soil. An excess of acid then arises; hence the fatal end.

PTOMAIN POISONING VERSUS FOOD-BORNE INFECTIONS

The decline in popularity of the expression "ptomain poisoning" is a happy omen. It represents a transition, gradual though it may be, from a poorly supported hypothesis as to the etiology of a state of disease to more concrete and more readily verified conceptions. As we review the evidence from our present position, gained by the advances of scientific investigation and an unrelentingly critical attitude, the suggestion of a close connection between the products of bacterial decomposition in tissues and the occasional outbreak of gastro-intestinal upsets in man is no longer so compelling. In the first place, the majority of the basic derivatives found in mediums in which bacteria are growing have proved not to be highly poisonous. These "ptomains" are for the most part amins formed from the amino-acids that are yielded by the proteins of disintegrating tissues. As they were among the first of the products of bacterial change in nitrogenous mediums to be recognized and dealt with by the chemist, it is not surprising that attention was centered on them as holding out the prospect of something definite in the explanation of the obscure intoxications following food ingestion. Often their actual existence has been postulated rather than demonstrated. Many an item of food has undoubtedly been unjustly charged in the past with containing unknown or undiscovered products of bacterial spoiling.

In the second place, in his vice presidential address on food-borne infections before the American Association for the Advancement of Science at the Pittsburgh meeting last December, Jordan[1] of the University of Chicago pointed out that ptomains are formed in the later stages of protein decomposition. He contends that by the time they are present, food containing ptomains would without much doubt almost invariably be condemned by the senses as nauesating and unfit to eat. But, as Jordan especially suggests, other and more tenable explanations can now be advanced to explain the genesis of food poisoning. Those outbreaks that have been most thoroughly investigated, says Jordan, have been found to be due not to the use of spoiled food containing ptomains, but either (1) to the presence of true bacterial toxins comparable to those of the diphtheria and tetanus bacilli and not to be regarded as the simple products of decomposition, or (2) to infection with specific bacteria borne in or on the implicated food article.

It may be objected that a toxin is today scarcely less vague in its significance than were the ptomains of a generation ago. It is true that the chemical nature of the so-called toxins remains to be elucidated. They are currently described as the chief poisonous products of bacteria, and are conceived to be manufactured specifically by synthetic processes. At any rate, emphasis is thus placed on specific micro-organisms rather than on food, per se, as the significant factor in the harmful situation.

Not long ago, the subject of botulism was discussed in The Journal.[2] It is worthy of emphasis that foods serve in a peculiar way as culture mediums for certain bacteria that produce highly poisonous toxins. Instead of perishing as they do in the air, water or soil, the micro-organisms multiply, so that, to quote Jordan, a very large proportion of the recorded outbreaks of food-borne intoxications have been traced to foods that have been prepared for the table and then allowed to stand before being eaten. Cooking, so far from surely destroying all bacteria, may, in some cases, provide a favorable temperature for their multiplication, if the heat is not made to penetrate all parts of the medium thoroughly. Milk is a well recognized carrier of danger. Less well known is the fact that meat may be the source of infection with the micro-organisms of the paratyphoid-enteritidis group. It is these that so often give rise to acute gastro-intestinal symptoms characteristic of so-called ptomain poisoning.

---

[1] Jordan, E. O.: Food-Borne Infections, Science, Jan. 25, 1918, p. 80.

[2] Food Poisoning, with Special Reference to Botulism, editorial, The Journal A. M. A., Aug. 11, 1917, p. 472.

Current Comment

INFLUENCE OF NATIONALITY ON MORTALITY

In spite of the complications of the problem presented by the crowding together of many races in the national melting pot, the Department of Health of New York City has undertaken to throw light on the influence of nationality on mortality by a comparative study of mortality conditions within the territory under its own jurisdiction. The report[1] emphasizes the fact that the crude or ordinary death rate of a community is not an accurate measure, in the comparison of that community with others. Too often a city, with a mortality far below that of more crowded Eastern cities, advertises its low rate with a reasonable certainty of having it accepted without question by an unthinking public. As a matter of fact, its low death rate is largely the result of a favorable age grouping of the population, which produces a reduced mortality, irrespective of surrounding health conditions. Other important factors that influence the death rate, and should therefore be considered before comparisons are made, include sex and its distribution, occupations dangerous to health, social and economic surroundings, climate and civil conditions. For instance, it is a matter of record in all civilized countries that the death rate among women is much lower than among men, the surplus mortality being due to hazardous occupations, suicide, and the excessive use of alcohol. It is also generally conceded, and verified by statistics, that an abnormally high death rate prevails in congested tenement districts, and that, generally speaking, the higher the poor man's wage, the better will be the health of his family and the smaller the amount of illness and death. Again, in discussing the influence of civil conditions, the report points out that the death rates among the married of both sexes are lower than among the single, widowed or divorced. All these conditions are taken into consideration in the writer's study of the mortality returns, and on this basis a standardized rate is determined, which is far more accurate than the crude rate. The report, which includes a comprehensive statistical survey of mortality among children under 5 years of age, shows that the lowest rate occurs among children of Russian, Austro-Hungarian and Swedish parents. On the other hand, a high mortality prevails among the children of English, German, Irish and Italian parents. The highest rates from congenital diseases are found among American, Irish and German infants. The rate for respiratory diseases among Italian children is double and treble that of the children of all other nationalities. Emphasis is laid on the fact that, in many respects, native stock seems less sturdy than foreign stock of recent acquisition. The children of native parents, for example, furnish the highest rate in malformations (47 per 10,000), in marasmus (222 per 10,000), and in tuberculosis (21 per 10,000). Among persons more than 5 years old, Irish, German, English and American males display the highest mortality, whereas the rates among Italians, Russians and Austro-Hungarians are considerably below the standard. Acute bronchitis, pneumonia and cancer greatly increase the mortality among Irish, German and English adults of both sexes. The mortality from accidental causes is higher among Irish males, and the rate from suicide is highest among German males, being 72 per 10,000.

A TEST OF THE HEART'S FUNCTIONAL CAPACITY

Progress in clinical medicine has brought about the invention of a variety of so-called functional tests designed to ascertain the capacity of different organs to perform the physiologic tasks with which they are normally confronted. Thus we have become familiar with functional tests for the stomach, the pancreas and the kidneys; and in a sense the estimation of the basal metabolism of individuals likewise forms a basis for judging the character of the body's response to its fundamental need of energy. Departures from the average or normal responses of the functions concerned in the respective tests give an opportunity to determine the existence of pathologic conditions, and to judge of the efficacy of remedial measures. When the functional tests become comparatively easy of mastery and application in their technical details, they are more than likely to win a deserved place in diagnostic procedure. No organ requires the application of suitable tests of capacity more conspicuously than the heart, the seat of indispensable physiologic activities, and frequently the location of serious working defects. Methods of measuring its capacity for performance have repeatedly been proposed. At the New York session of the American Medical Association, last June, Barringer[1] presented evidence for the usefulness of successive measurements of systolic blood pressure and the pulse at frequent intervals after graduated exercise. In a person with a normal heart, shortly after work these factors in the circulation are increased, and are found to return rapidly to the figures noted before the work was begun. If successively increasing amounts of work are done, the same reactions will be observed. The greater the work the higher are the subsequent systolic pressure and pulse rate. Finally, an amount of work is reached which is followed by a different type of blood pressure curve. It does not reach its height, as normally, within thirty seconds after completion of the work, but at a later period (from fifty to ninety seconds) when the pulse rate has dropped back to normal. At this stage the heart has evidently overtaxed its reserve power, which Barringer has proposed to measure as an index of its functional capacity. The simplicity of the scheme proposed commends it for further consideration. It requires no unusual outfit or technical skill. Barringer remarks that it makes no difference what kind of work is used, stair climbing, walking, dipping exercises or dumb-bell work. Any one of these permits of a comparative measure of the cardiac reserve power. The delayed rise in systolic pressure is always obtained in normal persons whenever the task done exceeds a certain amount, and it makes no difference what group of muscles is employed. Clinically, it has been noted that patients with varying grades of cardiac insufficiency are able to perform much smaller quantities of work than normal persons before a delayed rise ensues. Even a minimal exertion brings this evidence of lack of reserve power in cases of marked insufficiency, edema, dyspnea when resting, etc. When the general condition of the health improves, the amount of work that can be done before a delayed rise of systolic pressure ensues becomes greater and greater. By a study of the character of the response, it thus becomes possible to measure in some tangible way the effects of drugs or various forms of physical therapy on cardiac patients. The kind and amount of exercise which may benefit them likewise becomes subject to more intelligent supervision.

---

[1] Guilfoy, W. H.: The Influence of Nationality on the Mortality of a Community, with special reference to the City of New York, Pub. 18, Department of Health of the City of New York, 1917.

[1] Barringer, T. B., Jr.: Studies of the Heart's Functional Capacity, Arch. Int. Med., December, 1917, p. 829.

THE COMPOSITION OF EDEMA FLUIDS

Studies of the detailed composition of the blood, as ascertained by the technic of microchemical analysis, have demonstrated the value which information thus secured may have in the domain of diagnosis. The nonprotein nitrogenous compounds, such as urea, uric acid, creatin and creatinin, have been determined with considerable precision for a variety of clinical conditions. The sugar content of the blood has been the subject of exhaustive investigations, with the result that chemical analysis of the circulating fluid has become a highly important supplementary procedure in addition to the routine examination of the urine, in conditions in which the carbohydrate metabolism is concerned. Of late, the fats and lipoids of the blood have also come within the range of accurate analytic estimation for diagnostic purposes. As might be expected, as a result of these studies, other body fluids than the blood are beginning to be studied by the procedures that have been found so useful. We are likely, therefore, in the immediate future to acquire important additions to the all too scanty knowledge of the composition of various secretions, transudates and exudates. Facts derived in this way ought to be helpful in solving some of the still debated questions as to the mode of origin of these fluids. Until very recently, one could scarcely expect to learn more about a transudate, for example, than that it was richer or poorer than usual in solids, that its protein content showed an approach to certain types, that it contained or lacked certain enzymes, and perhaps that it exhibited physicochemical properties described in terms of osmotic pressure.

A new series of analytic data has recently been contributed from the chemical laboratory of the Massachusetts General Hospital by Denis and Minot.[1] They show that many of the nonprotein constituents of various types of edema fluid occur in the same concentration in exudates and transudates as in blood. Fat and cholesterol ordinarily occur in transudates in relatively small amounts. So far as we are aware, the effect of diet on the nonprotein constituents of body fluids other than blood has never been determined in any systematic way. In observations on ascitic fluids obtained in the case of cirrhosis of the liver at intervals, Denis and Minot have found a prompt response to changes in the food intake. The protein content was not altered by diets rich or low in protein; but the responses of the nonprotein nitrogen, the urea, uric acid and cholesterol showed that, like the blood, a transudate can easily be influenced in composition by variations in the diet.

---

[1] Denis, W., and Minot, A. S.: The Nonprotein Constituents of Edema Fluids, Arch. Int. Med., December, 1917, p. 879.

THE DASHEEN AS FOOD

The Office of Home Economics at the United States Department of Agriculture in Washington has recently called attention to an addition to the dietary in the dasheen, a root at present little known in the United States, but forming a staple article of food for millions of people in the tropics. The dasheen is a starchy vegetable resembling the potato more nearly than any other familiar article of food used in this country. It is reported to be suited to the warm localities where white potatoes do not grow well. It can be cooked in much the same way as these highly prized vegetables, and is reputed to be relished by those who are familiar with the suitably prepared product. In a series of digestion experiments conducted on men by Langworthy and Holmes,[1] the subjects of their own volition ate as much as 1½ pounds of dasheen daily without any observed physiologic disturbances, so that the government experts conclude that considerable amounts of the vegetable may be used safely in the dietary, and that they are palatable. In the digestion trials in which the dasheen formed practically all of the carbohydrate present, the digestibility of the latter was over 97 per cent., thus comparing favorably with the best utilized starchy products. The results were good alike for the mature and immature dasheens.

---

[1] Langworthy, C. F., and Holmes, A. D.: The Digestibility of the Dasheen, Bull. 612, U. S. Dept. Agric., Nov. 8, 1917.

The Italian Medical Profession During the War.—The physicians of Lombardy and Liguria in Italy have taken the lead in forming what they call the Unione dei Medici Italiani per la Resistenza Nazionale. Its aim is to stimulate physicians throughout the country to aid and encourage the general public "in these tragic hours since the close of October." Public lectures and private talks are being held at various centers, and one by E. Morselli is reproduced in the *Policlinico*, Dec. 2, 1917, p. 1429. Among other things he said: "Medicine, rich with its noble traditions, should be the high priest of civilization and progress and especially in these dark days of war physicians should be elements and factors of energy . . . spurring their rich clients to give much and give often; encouraging the working classes to greater efforts, to save their wages and put up with the privations brought by the war; combating cowardice and treachery and enemy propaganda; striving to raise the neuropsychic tone of the whole community; spurring the authorities, the government to more energetic action for the salvation and the honor of the country." He regards it as the duty of the profession to combat the liquor trade, prostitution, and all causes tending to debase, including the display of luxury by the very rich, which tends to rouse base instincts.

Medical Mobilization and the War

Personnel of the Medical Department

The week ending February 8 there were 764 officers in the Medical Corps, 16,771 in the Medical Reserve Corps, of whom 13,401 were on active duty, 1,198 in the Medical Corps of the National Guard and 12 in the Medical Corps of the National Army. There were 760 officers in the Sanitary Corps and 136 officers in the Ambulance Service.

Increased Rank for Medical Officers .

Last week Senator Owen introduced into the Senate, and Representative Dyer into the House of Representatives, the following bill regarding rank of the Medical Reserve Corps of the Army:

"That hereafter the commissioned officers of the Medical Corps, and of the Medical Reserve Corps of the United States Army on active duty shall be distributed in the several grades in the same ratios heretofore established by law in the Medical Corps of the United States Navy.

"The Surgeon-General shall have authority to designate as 'consultants' officers of either corps and retire them as the interests of the service may require."

Selective Service Regulations for Medical Advisory Boards

At the request of the Provost-Marshal General, the Surgeon-General of the Army appointed a board of physicians specializing in particular subjects, to prepare regulations on physical examination for the medical advisory boards. This board has prepared exhaustive and detailed regulations for the guidance of the advisory boards. They are being published in the form of a manual and will be sent out in a few days. Incorporated in the manual also will be the regulations for local boards, prepared by the same committee, thus making the complete regulations available in one manual.

New Assignments in the Public Health Service

During the week ending February 6 the following important changes were made in the administrative organization of the United States Public Health Service:

Surgeon J. W. Schereschewsky has been relieved at Pittsburgh and assigned for duty as assistant surgeon-general in charge of the Division of Scientific Research. Assistant Surgeon-General J. W. Kerr, who formerly held this position, has been assigned to the director of the Hygienic Laboratory for temporary duty.

Surgeon B. S. Warren has been relieved from duty with the United States Employees' Compensation Commission and has been assigned as assistant surgeon-general in charge of the Division of Sanitary Reports and Statistics. Assistant Surgeon-General J. W. Trask, who held the latter position, has been assigned to the position vacated by Surgeon Warren.

Assistant Surgeon-General W. C. Rucker, in charge of domestic quarantine, has been assigned for special temporary duty with the War Department in the British Isles and on the continent of Europe in connection with maritime quarantine for the prevention of the introduction of quarantinable diseases into the United States.

Red Cross Information Regarding Soldiers in Training Camps

In reply to a letter of the Secretary of War, to the American Red Cross, suggesting that the service of the Red Cross in keeping families in America in personal touch with soldiers ill or wounded in the field, which is already established in France, be extended to the training camps in the United States, Henry P. Davison, chairman of the Red Cross War Council, announces that it will gladly extend this service to the camps in America, and will immediately appoint responsible men as searchers in the various camps, that this work may be put into operation as quickly as possible. The work will of course be done under regulations made by the War Department. Orders will be issued promptly after the details have been arranged by the Surgeon-General and Adjutant-General of the Army.

The American Red Cross in Italy

The work of the American Red Cross in Italy in supply emergency relief during and immediately following the invasion of Italy in October and November, and the later splendidly organized system of salvage of the remains of the disorganized armies and the dispossessed populace of the invaded regions, is another monument to the efficiency of this great organization. In a series of articles Paul U. Kellogg, editor of the *Survey*, and a member of the investigating committee on refugees, has described that great work, and the plans for the housing, hospital and medical care, feeding and general rehabilitation of the destitute populations.

Kellogg says that before the permanent organization of the Red Cross commission had yet sailed for Italy following the declaration of a state of war with Austria, the existing organization in France, at the very peak of its load for American and French troops and French civilians, was able to send to Italy experienced men to open offices in Rome early in November, canvass the situation by wire through the American embassy and consular service, despatch an ambulance section and two trains of supplies, make wholesale purchases in Italy while supplies were en route from France, wire money to spend on the spot to consuls, committees and local agencies, send out north and south the nucleus of a field staff and commission two ranking American experts in emergency relief to make a rapid survey of the whole field as the basis for a long plan of help. The American Relief Clearing House, an organization already on the ground having as its object originally the organization and transportation of supplies for hospitals, merged with the Red Cross, and with large sums granted by the Red Cross used its organization in furthering the emergency work.

In preparing for permanent relief, districts were experimentally organized as follows: For the war zone, with headquarters at Padua; for Lombardy, at Milan; for Piedmont, at Turin; for Liguria and the Mediterranean coast of Tuscany, at Genoa; for Tuscany and Emilia, at Florence; for the Venetian colonies along the Adriatic, at Rimini; for Central Italy and Sardinia, at Rome; for Campania, Basilicata and Puglia, at Naples, and for Sicily and Calabria at Palermo. It is the plan that the refugees must be distributed throughout the whole of Italy in order not to burden unduly any one community, for the work of relief and rehabilitation must go on for months and perhaps for years.

To the Red Cross is not due all the credit, of course, for relief work, for in addition to the well organized work of the governmental agencies were the activities of the Italian welfare and relief societies, the American Clearing House already mentioned, volunteers among the people and Americans present in Italy, and prominently, the efforts and assistance of the American consuls throughout the country, and particularly in the zone of disturbance, who were appealed to first for information regarding the requirements. The details of the amazingly rapid furnishing of food, clothing, blankets, medical supplies and provision for housing the refugees are too voluminous to be given here. Not the smallest portion of the tremendous task was the establishment and refitting of military hospitals to take the place of the hospitals and equipment which had to be abandoned in the hasty retreat, many of which were in the invaded region, and most of which were near the very front at the time the movement began.

The future work of the organization in caring for the refugees and those incapacitated for military duty will be matters of distribution to centers where rehabilitation may be brought about by finding work for those able to work, by proper housing arrangements, recreational activities, looking after health and sanitation, etc. In this work the efforts of the Red Cross will be divided, as in France, into two departments, that relating to the soldiers and that relating to the civilian population. That work is already well in hand and at the time of writing the articles, seven weeks after the retreat, wonderful progress had been made on all these lines. The health of the refugees in all the cities visited was, in view of all the hardships encountered, said to be on the whole very good. Careful inquiry among physicians, officials and relief workers indicated that with few exceptions there was no marked prevalence of digestive, nervous or infectious disease.

NEWS OF THE CANTONMENTS

Twenty-Eight Division, Camp Hancock, Augusta, Ga.

PERSONAL

Mrs. John Fell of Philadelphia and her sister, Miss Randolph, together with Mrs. Ullern, wife of Captain Ullern of the French Mission, are at the Parkridge Inn. They are conducting classes in French for the medical officers of the Twenty-Eighth Division at camp.——Mr. Walter Camp, who has been assisting in the physical education work of the division, has been made a captain.——The base hospital connected with this division has now about forty-five female trained nurses.——Professor Stiles of the Public Health Service is arranging to give the surgeons of the division a lantern demonstration on some of his recent work, including hookworm.

Thirty-First Division, Camp Wheeler, Macon, Ga.

Feb. 9, 1918.

Much to our satisfaction the division surgeons have attended the last two staff meetings of the base hospital.

Last night a practical demonstration of the Carrel-Dakin method with the presentation of illustrative cases was given by Major Lund's staff. This proved to be both interesting and instructive.

The roentgen ray department considers it a day lost when some unusual or interesting condition does not show up. Today it was a fracture of the neck of the scapula.

The basketball court is completed and the baseball grounds will soon be in shape. We expect to turn out championship teams in both sports. There is a rumor that the Georgia Peach, Tyrus Cobb, is to be assigned to our unit.

Major Sailer is convalescent from a submucous resection of the nasal septum.

The number of patients in the hospital has been steadily decreasing for some time, there being under treatment today, 868.

No new cases of meningitis have been admitted for more than twenty-one days, and the number of pneumonia cases continues to decline.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 1, 1918

1. Annual admission rate per 1,000 (disease only): 1,713.6
   All Troops 1,506.2
   National Guard Camps .... 1,995.
   National Army Camps 1,485.7
   Regulars—Divisions and Departments........
2. Noneffective rate per 1,000 on day of report: 51.1
   All Troops 49.6
   National Guard Camps 55.7
   National Army Camps 41.3
   Regulars—Divisions and Departments ....
3. Camps and Departments showing admission rates for disease higher than average—
   National Guard: Camps Wheeler, Bowie, Doniphan, Beauregard, Shelby, Sevier and Kearny.
   National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Jackson, and Lee.
   Regulars: Divisions and Departments—Central Department and Southeastern Department.
4. Camps and Departments showing noneffective rates higher than average:
   National Guard: Camps Beauregard, Bowie, Wheeler, Shelby, Sevier and Kearny.
   National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Funston (89th), Jackson, Lee and Camp Funston (92d).
   Regulars: Southeastern, Central and Southern Departments.
5. Venereal Diseases:
   Annual admission rate per 1,000— 60.7
   National Guard Camps 116.4
   National Army Camps 73.5
   Regulars—Divisions and Departments ....
   Camps and Departments having rate above average:
   National Guard: Camps Logan, Doniphan, Wheeler and Bowie.
   National Army: Camps Zachary Taylor, Pike, Gordon and Jackson.
   Department: Southern. 795
6. Number of cases of pneumonia........ 64
   Highest number in any one camp (Pike)........ 79
   Number of cases of meningitis........ 19
   Highest number in any one camp (Jackson) ....

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 1, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective per 1,000
Wadsworth	15	...	...	27	..	..	...	1	..	2	29.1
Hancock	15	...	...	23	..	..	14	3	..	2	32.0
McClellan	5	...	...	24	..	..	37	2	3	1	38.0
Sevier	19	...	...	23	..	..	9	..	..	6	55.6
Wheeler	36	3	2	45	..	..	...	..	..	10	78.0
Logan	11	...	...	102	..	..	34	..	3	2	33.5
Cody	50	...	1	14	..	..	26	..	..	12	45.2
Doniphan	22	...	...	29	..	..	8	3	1	6	47.1
Bowie	30	...	1	37	..	..	1	2	..	4	78.8
Sheridan	15	...	...	7	..	..	29	1	..	6	32.2
Shelby	12	...	2	27	..	..	1	1	..	2	60.7
Beauregard	23	...	9	22	..	..	...	8	..	8	79.9
Kearny	13	...	...	8	..	..	9	..	14	1	50.0
Devens	7	...	...	19	..	..	19	1	..	2	36.7
Upton	6	...	...	21	..	..	2	..	1	4	31.7
Dix	3	1	...	23	..	..	22	..	6	0	46.4
Meade	17	...	...	43	..	..	19	2	10	7	32.7
Lee	21	...	...	59	..	..	75	1	1	13	65.7
Jackson	17	...	3	53	..	..	15	19	1	4	67.9
Gordon	18	...	...	131	..	..	65	1	..	12	34.3
Sherman	4	...	...	33	..	..	62	1	30	4	42.9
Taylor	30	...	...	285	..	..	23	2	..	2	79.5
Custer	10	...	...	12	..	..	59	1	5	2	44.3
Grant	12	...	...	36	..	..	66	1	12	0	40.5
Pike	64	1	6	195	..	..	20	..	31	19	88.5
Dodge	20	...	...	23	..	..	34	..	11	3	81.5
Funston	11	...	...	8	..	..	11	3	2	3	73.1
Travis	54	...	...	22	..	..	6	4	..	9	98.5
Lewis	8	...	...	15	..	..	18	2	5	3	48.9

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916*	Regulars in U. S., Week Ending Feb. 1, 1918	National Guard, All Camps, Week Ending Feb. 1, 1918	National Army, All Camps, Week Ending Feb. 1, 1918
Pneumonia	2.59	32.8	42.6	36.1
Dysentery	3.97	0.4	0.4	0.2
Malaria	12.52	0.9	2.3	1.1
Venereal	91.23	73.5	60.7	116.4
Paratyphoid	0.31	0.0	0.0	0.0
Typhoid	0.21	0.0	0.0	0.0
Measles	20.28	135.1	26.2	61.4
Meningitis	0.29	2.9	3.3	4.5
Scarlet fever	0.59	23.3	3.3	13.7

* Enlisted men only, both white and colored.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Meade, Annapolis Junction, Md., for duty in connection with the Medical Department of the Army, and on completion *to his proper station*, Col. PERCY E. ASHBURN.

To Camp McClellan, Anniston, Ala., for duty, Col. CHARLES WILLCOX.

To Washington, D. C., Aviation Section, Signal Corps, for duty, Lieut.-Col. SAMUEL M. DE LOFFRE.

To Camp Beauregard, Alexandria, La., as Division Surgeon, Lieut.-Col. LARUS D. CARTER.

To Newport News, Va., for duty, Lieut.-Col. WILLIAM H. SMART.

To Columbus Barracks, Ohio, for duty, Lieut.-Col. HARRY G. HUMPHREYS.

To Lake City, Fla., to inspect and report on properties, and on completion *to his proper station*, Lieut.-Col. JOSEPH Y. PORTER.

To Camp Greene, Charlotte, N. C., to make a special inspection of the Medical Department, and on completion *to his proper station*, Lieut.-Col. CHARLES F. MORSE.

To Fort Riley, Kansas, for duty, Major JOSEPH A. WORTHINGTON.

To Muncie, Ind., to inspect certain properties, and on completion *to his proper station*, Major JOHN R. McKNIGHT.

To Portland, Me., Coast Defenses of Portland, for duty, Capt. WILLIAM L. HASKELL, Lieut. HAROLD M. ALLEN.

To Camp Hancock, Augusta, Ga., for temporary duty, Capt. THEODORE C. FEGLEY.

To Camp Doniphan, Fort Sill, Okla., for duty, Lieut. ARTHUR J. KAMPMEIER.

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HASKETT L. CONNER.

To Camp Greene, Charlotte, N. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HAROLD D. ROGERS.

To Fort Totten, N. Y., for duty, Lieut. SETH H. MILES.

To San Antonio, Texas, Kelly Field, with the neuropsychiatric board for the purpose of acting with the board in examining the command in his specialty, Lieut. GORDON F. WILLEY.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HARVEY E. WEBB.

To Camp Wadsworth, Spartansburg, S. C., for duty, Lieut. JOSEPH H. MURPHY.

To San Francisco, Calif., for duty, Lieut. HERMAN G. MAUL.

To Douglas, Ariz., for duty and by letter to the commanding general, El Paso; Texas, Lieut. JAMES McALLISTER.

To Fort Monroe, Va., to make special sanitary inspection, and on completion *to his proper station*, Senior Surgeon JOSEPH H. WHITE.

Honorably discharged, Capt. CHARLES M. SEIVERS, Lieuts. GEORGE F. HOLLER, ROBERT L. BARROW, LOUIS P. LANE, Jr., FORD A. BARNES.

Honorably discharged from the Medical Corps, National Guard, on account of physical disability incident to service, Lieut. ISAAC G. COOK.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School, Washington, D. C., for instruction, Lieut. JOHN T. CALLAWAY, Birmingham.

To Camp Wheeler, Macon, Ga., for temporary duty, from New York City, Lieut. FRANCIS M. INGE, Mobile.

To Fort Oglethorpe, for instruction, Capt. JOHN McI. WHITESIDE, Anniston; Lieut. WILLIAM R. ROUSSEAU, Huntsville.

To Montgomery, Ala., Taylor, Field, Signal Corps, Aviation School, for duty, Lieut. GEORGE A. CRYER, Anniston.

To New York City, Roosevelt Hospital, for instruction, and on completion *to Camp Upton*, for duty, from Fort Oglethorpe, Lieut. JOSEPH M. WELDON, Tallassee.

To Philadelphia, Pa., Evans Dental Institute, for instruction, and on completion *to his proper station*, from Camp Gordon, Lieut. ANDREW C. CAMERON, Birmingham.

To San Antonio, Texas, Kelly Field, to examine the command in his specialty, from Camp Travis, Lieut. ROBERT H. HOWARD, Tuskegee.

Honorably discharged, on account of physical disability which existed prior to his entrance into the service, Lieut. EDWARD DAY, Orville; Corps, WILLIAM McMAHAN BOGART, Stevenson.

Arizona

To Camp Cody, Deming, N. M., for duty, Lieut. AUSTIN C. WRIGHT, Ajo.

To Fort Oglethorpe, for instruction, from Baltimore, Md., Lieut. HILARY D. KETCHERSIDE, Yuma.

Arkansas

To San Antonio, Texas., Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. MAX O. USREY, Blythesville; JOSEPH M. CLARK, Furth; JAMES M. BEST, Monticello; JAMES F. HAYS, Russellville; OSCAR A. JAMISON, Tuckerman; THOMAS E. GRAY, Winslow.

Honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. ALEXANDER E. HARRIS, Little Rock.

California

To Camp Cody, Deming, N. M., for duty, from Camp Kearny, Major WALTER V. BREM, Los Angeles.

To Camp Kearny, Linda Vista, Calif., for temporary duty, Capt. RALPH HAGAN, Los Angeles.

To Camp Meade, Annapolis Junction, Md., *on* completion of his course at New York City, Major ALANSON WEEKS, San Francisco.

To Camp Stanley, Leon Springs, Texas, as orthopedic surgeon, and as consultant in such cases as may be referred *to* him by proper authority, from Camp Meade, Capt. JOHN M. HENCH, Pacific Grove.

To Camp Travis, San Antonio, Texas, for duty, *from* San Antonio, Capt. HENRY ABRAHAM, San Francisco.

To Fort Oglethorpe, for duty, *from* Allentown, Pa., Major LAVIN POWELL, Oakland.

To Fort Riley, for instruction, Lieut. ROBERT A. POWERS, Oreville.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Camp Fremont, Major WILLIAM A. BRYANT, San Francisco.

To Western Department, for duty, Lieuts. CHARLES A. MACKEY, Oakland; ORRIS R. MYERS, Sacramento.

To his home and honorably discharged on account of physical disability which existed prior *to* his entrance into the service, Capt. ROBERT M. JONES, Jr., Fresno.

Canal Zone

To Camp Hancock, Augusta, Ga., Motor Mechanics Regiments, from Washington, D. C., Capt. EDWARD P. BEVERLY, Balboa.

Colorado

To Camp Gordon, Atlanta, Ga., for duty, from Camp Gordon, Capt. WILL H. SWAN, Colorado Springs.

To Fort Oglethorpe, for instruction, Lieut. JOHN E. HOWARD, Denver.

To Fort Riley, for instruction, Lieut. WALTER K. HOTCHKISS, Brighten.

To New York City, Neurological Institute, for intensive training, from Fort Oglethorpe, Capt. CYRUS L. PERSHING, Denver.

To Washington, D. C., for consultation, from San Antonio, Capt. ALEXIUS M. FORSTER Colorado Springs.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. CHARLES E. ELLIOTT, Victor.

Connecticut

To Camp Sheridan, Montgomery, Ala., on completion of his course at New York City, Capt. DANIEL G. PATTERSON, Bridgeport.

To Mineola, L. I., N. Y., Hazelhurst Field, Aviation Section, Signal Corps, for duty, Lieut. EUGENE M. BLAKE, New Haven.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Capt. JOHN E. GRIGGS, Hartford; Lieut. FRANK J. RONAYNE, Hartford. Fort duty, from Fort Oglethorpe, Lieut. ALEXANDER B. TIMM, New Haven.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. AUGUSTIN A. CRANE, Waterbury.

Delaware

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. RICHARD R. TYBOUT, New Castle.

District of Columbia

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. HARRY A. BISHOP, Washington.

To Camp Wadsworth, Spartanburg, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. JOEL A. TILTON, Washington.

To Fort Oglethorpe for instruction, from Baltimore, Lieuts. CLAUDE C. CAYLOR, JAMES P. KERBY, Washington.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, for duty, from Fort Riley, Capt. FRANCIS M. MUNSON, Washington.

Florida

To Arcadia, Fla., Dorr Field, Signal Corps, Aviation School, for duty, Lieut. ROBERT E. GILBERT, Monticello.

To Camp Wheeler, Macon, Ga., for duty, from Camp Wheeler, Lieut. WILLIS H. WATSON, Lakeland.

To Fort Oglethorpe, for instruction, Capt. JAMES H. HARPER, Fort Myers.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. WILLIAM W. HOGGATT, Bradentown.

Georgia

To Arcadia, Fla., Carlstrom Field, Signal Corps, *Aviation School*, for duty, Lieuts. DAN H. DUPREE, Athens; JOHN W. EDMONDSON, Dublin; WARREN E. BENSON, Marietta.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JOHN W. DURDEN, Oak Park.

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. GROVER C. COLE, MURDOCK S. EQUEN, Atlanta.

To Camp Sherman, Chillicothe, Ohio, as member of a board for the purpose of examining the command for nervous and mental diseases, from Philadelphia, Lieut. MALCOLM D. CLAYTON, Milledgeville.

To Fort Totten, N. Y., for duty, from Fort Totten, Lieut. ROBERT F. McLEOD, Pineview.

To Governor's Island, N. Y., Coast Defenses of Southern New York, *from* Fort Oglethorpe, Lieut. SIGE EHRLICH, Bainbridge.

Hawaii

To Cape May, N. J., for duty, on completion of his present leave from Camp Kearny, Major JOHN B. LUDY, Honolulu.

To Governor of Hawaii for duty as medical advisor, Major CHARLES B. COOPER, Honolulu.

Illinois

To Baltimore, Md., Hopkins Medical School, for temporary duty, from Fort McPherson, Major DEAN D. LEWIS, Chicago.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. EMIL A. SCHLAGETER, Chicago.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS S. CROWE, Lieut. FRANZ H. HARMS, Chicago.

To Camp Hancock, Augusta, Ga., for temporary duty, Lieut. WILLIAM J. RIDEOUT, Freeport.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Capt. HERMAN H. BASSLER, Chicago.

To Chicago, Ill., for orthopedic instruction, Lieut. SAMUEL L. STEVENS, Dalton City.

To Fairfield, Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. PETER G. PETERSON, Chicago.

To Fort Des Moines, Iowa, for duty, Lieut. RICHARD J. BEDFORD, Dahinda.

To Fort McPherson, Ga., for duty, Lieut. FRANCIS D. FLETCHER, Springfield; from Fort Riley, Lieut. EDWIN J. BARNETT, Chicago.

To Fort Oglethorpe, for instruction, Lieuts. CLINTON L. MONTGOMERY, Blue Mound; WILBER P. FRAZIER, Carthage.

To Fort Riley, for instruction, Capt. GEORGE A. DARMER, Aurora; Lieut. RANDOLPH C. STITES, Chicago; from Camp Grant, Lieut. ROYAL W. DUNHAM, Chicago. For temporary duty, Lieut. GILBERT E. BRERETON, Chicago; from Camp Doniphan, Lieut. CLIFFORD W. WELLS, Chicago.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, Capt. HERBERT WALKER, Chicago.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Capts. CLARENCE U. GEYER, Aurora; HUGH L. MARSHALL, Stronghurst; Lieut. ARTHUR L. MUREN, Patterson.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Dodge,* for duty, Lieut. JOHN O'CONNELL, Chicago.

To Rock Island, Ill., for duty, and on completion *to his proper station,* Major PAUL B. MAGNUSON, Chicago.

To San Antonio, Texas, Kelly Field, with the Examining Board, from Douglas, Ariz., Capt. THOMAS F. NEIL, Moline.

To Washington, D. C., Surgeon-General's Office, Lieut. WILLIAM W. GAILEY, Bloomington; from Fort Sheridan, Lieut. WILLIAM A. CLARK, Chicago.

To their homes and honorably discharged, Capt. GEORGE M. FRENCH, Springfield; on account of physical disability which existed prior to entrance into the service, Lieuts. EDWARD E. HANSON, Chicago; ALONZO M. EDWARDS, Marion.

Indiana

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, Lieut. CLYDE C. BITLER, Newcastle.

To Camp Grant, Rockford, Ill., for instruction, Capt. NOAH W. CLARK, Rossville; Lieuts. ROYAL W. DUNHAM, Angola; DORSEY D. METCALF, Fort Wayne.

To Fort Bliss, Texas, for duty, from Fort Riley, Lieut. IRA E. BOWMAN, Odon.

To Fort Des Moines, Iowa, for duty, Lieut. ARTHUR L. LEEDS, Michigan City.

To Fort Oglethorpe, for instruction, Lieuts. SAM W. HOOKE, Noblesvllie; DUFFIELD D. MacGILLIVRAY, Pine Village; ADAM F. PANEK, South Bend.

To Fort Riley, for instruction, from Camp Grant, Capt. NOAH W. CLARK, Rossville; Lieut. FORSEY D. METCALF, Fort Wayne.

To Governor's Island, N. Y., Coast Defenses for duty, from Fort Oglethorpe, Capt. GEORGE T. WILLIAMS, Crawfordsville.

To Portland, Me., Coast Defenses from Fort Oglethorpe, Lieut. HENRY W. IRWIN, Indianapolis.

Iowa

To Army Medical School, Washington, D. C., for instruction, Lieut. HENRY C. ALLEN, Independence.

To Camp Grant, Rockford, Ill., for temporary duty, from New York City, Lieut. FREDERICK W. SALLANDER, Fort Madison.

To Chicago, Ill., Presbyterian Hospital, for instruction, on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. HERBERT W. PLUMMER, Lime Springs.

To Dallas, Texas, State Fair Grounds, from Fort Riley, Capt. CHARLES H. COGSWELL, Cedar Rapids.

To Fort Des Moines, Iowa, for duty, Capt. THOMAS E. McCAUGHAN, Ireton; Lieut. EVART C. HARTMAN, Algona; FRANK L. GRIFFIN, Baldwin; MARTIN T. BREWER, De Soto; JOHN J. BOWES, Livermore; JAMES F. BATTIN, Marshalltown; HARRY E. CARVER, Rose Hill.

To Fort Leavenworth, Kansas, Department Laboratory from Camp Pike, Major GUTHRIE McCONNELL, Waterloo.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. GEORGE A. PLUMMER, Cresco.

Kansas

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Riley, Lieut. KIRK P. MASON, Cawker City.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on complesion *to his proper station,* from Camp Dodge, Lieut. FOY J. M. ERNEST, Topeka.

To Fort Des Moines, Iowa, for duty, from Camp Dodge, Lieut. CHARLES M. FITZPATRICK, Salina.

To Fort Oglethorpe, for instruction, from Fort Monroe, Lieut. JACOB H. HALDEMAN, Paola.

To Fort Riley, for duty, from Fort Riley, Capt. CHRISTIAN H. KOENTZ, Onaga.

Kentucky

To Camp Lee, Petersburg, Va., for duty, Lieut. MILTON B. COHEN, Louisville.

To Fort Oglethorpe, for instruction, Lieut. JUDSON P. BOULWARL, Louisville.

To New York City, Neurological Institute, for instruction, Capt. OSCAR E. BLOCH, Louisville.

To Philadelphia, Pa., Evans Dental Institute, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM T. BRUNER, Louisville.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Sherman,* for duty, Capt. ELMER L. HENDERSON, Louisville.

To Washington, D. C., for duty, Lieut. ERMIN L. RAY, Louisville.

Honorably discharged, Capt. EDWIN T. BRUCE, Louisville.

Louisiana

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD E. ARCHIBALD, Alberta.

To Camp Travis, Fort Sam Houston, Texas, for duty, on completion of his instruction at New York City, Capt. WILLIAM M. PERKINS, New Orleans.

To Fort Oglethorpe for instruction, Capt. ARTHUR R. CHOPPIN, Alexandria; Lieut. DELANE S. CALHOUN, Ruston.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Doniphan,* Fort Sill, Okla. For duty, from Fort Oglethorpe, Lieut. ALBERT C. JACKSON, New Orleans.

To San Antonio, Texas, Kelly Field, Aviation Section, Signal Corps, for duty, Lieut. EDWARD B. PRIES, New Orleans.

Maine

To Fort Oglethorpe, for instruction, Capt. HARRY F. MORIN, Bath.

To his home and honorably discharged, on account of physical disability which existed prior to his entrance into the service, Capt. HARVEY H. ROBERTS, South Poland.

Maryland

To Camp McClellan, Anniston, Ala., for duty, from Camp Devens, Lieut. GEORGE B. WISLOCKI, Baltimore.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. ERNEST M. G. REIGER, Baltimore.

To Edgewood, Md., for duty, from Fort McHenry, Lieut. JOHN F. LUTZ, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. GIDEON TIMBERLAKE, Baltimore; NEAL F. TWIGG, Cumberland; from Baltimore, Lieut. HUMPHREY D. WOLFE, Baltimore; from Fort Monroe, Lieut. ISRAEL J. FEINGLOS, Baltimore.

To Newport News, Va., for duty, Lieuts. PAUL N. FLEMING, Hagerstown; HENRY MERKEL, Irvington.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. WILMER M. PRIEST, North East.

To the inactive list, from Baltimore, Major FREDERICK H. BAETJER, Baltimore.

Massachusetts

To Army Medical School, Washington, D. C., to give instruction in orthopedic surgery, and on completion *to his proper station,* from Boston, Major ROBERT W. LOVETT, Boston.

To Boston, Mass., Charitable Eye and Ear Infirmary, Aviation Section, Signal Corps, for duty, from Boston, Lieut. EDWARD F. W. BARTOL, Molton.

To Camp Devens, Ayer, Mass., for temporary duty, Major ELLIOTT P. JOSLIN, Boston; Lieut. HOLLIS G. BATSHELDER, Dedham.

To Camp Grant, Rockford, Ill., for instruction, Lieut. WILLIAM C. JENSEN, Worcester.

To Camp MacArthur, Waco, Texas, for duty, from Camp Hancock, Major CHARLES DUDLEY, Kingston.

To Camp Sherman, Chillicothe, Ohio, as a member of a board to examine the command for nervous and mental diseases, from Camp Sherman, Capts. HENRY L. STICK, Baldewinville; EDWARD S. ABBOT, Waverly.

To Fort Oglethorpe, for instruction, Capt. WESLEY T. LEE, Boston; Lieuts. HENRY A. R. KRAUTMAN, Boston; HAROLD W. RIPLEY, Braintree; ROLAND O. PARRIS, Brookline; LOUIS F. SALERNE, East Boston; MIRKE L. ALEXANDER, Orange.

To Fort Riley, for instruction, from Camp Grant, Lieut. WILLIAM C. JENSEN, Worcester.

To New Orleans, La., for duty, and upon completion *to Fort Oglethorpe,* to confer with the commandant regarding the establishment of a course of training in Military Orthopedic Surgery, and on completion, *to his proper station,* Major ELLIOTT C. BRACKET, Boston.

To New York City, Neurological Institute, for intensive training, from Camp Devens, Lieut. DANIEL J. GENNELLY, Fall River.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Beauregard, Capt. CHARLES F. CANEDY, Greenfield; on completion *to Camp Dodge,* for duty, Lieut. JEROME J. McCAFFREY, Attleboro.

To the inactive list of the Medical Reserve Corps, Capt. ISAAC S. F. DODD, Pittsfield.

Michigan

To Camp Wheeler, Macon, Ga., for duty, from Camp Wheeler, Lieut. ALBERT H. ROSS, Battle Creek.

To Fort Oglethorpe, for instruction, Lieut. RICHARD H. JAERS, Detroit.

To Fort Riley, for temporary duty, Lieut. GEORGE D. TREADGOLD, Port Huron.

To Mount Clemens, Mich., Selfridge Field, Aviation Section, Signal Corps, for duty, Lieuts. ARA B. HEWES, Adrian; FRANK C. ANDERSON, Detroit.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. NELSON MAC ARTHUR, Detroit.

Honorably discharged from the Medical Reserve Corps, Lieut. CHARLES F. KUHN, Detroit.

Minnesota

To Camp Dodge, Des Moines, Iowa, and *Fort Riley,* for inspection, and on completion *to his proper station,* from Rochester, Minn., Major LOUIS B. WILSON, Rochester Aviation Section, Signal Corps; as junior member of Physical Examining Unit, Medical Member of Examining Board and Recruiting Officer, Lieut. WALTER D. LEE, Madison.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. CHARLES B. DRAKE, St. Paul.

To Camp MacArthur, Waco, Texas, Aviation Mobilization Camp, for duty, from Rantoul, Ill., Capt. CHESTER M. CLARK, Duluth.

To Camp Taylor, Louisville, Ky., for temporary duty, Lieut. ALBERT F. RYAN, Hibing.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,*. for duty, Lieut. JOHN J. DONOVAN, Litcheld.

To Del Rio, Texas, for duty, from Fort Riley, Lieut. ALBERT M. LARSON, St. Paul.

To Fairfield, Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. REUBEN A. JOHNSON, Minneapolis.

To Fort Leavenworth, Kansas, for duty, Lieut. HENRY ODLAND, Minneapolis.

To Fort Oglethorpe and Fort McPherson, Ga., for inspection, and on completion *to his home and to the inactive list* of the Medical Reserve Corps, Major CHARLES H. MAYO, Rochester.

To Fort Riley, for temporary duty, Capt. GUSTAV H. LUEDTGE, Fairmont. For instruction, Lieut. JOSEPH MOSES, JR., New London.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. PAUL W. WIPPERMAN, Minneapolis.

To Oklahoma City, Okla., for instruction, from Camp Pike, Capt. ROBERT H. MONAHAN, International Falls.

To his home and *honorably discharged* from the Medical Reserve Corps, on account of physical disability which existed prior to his entrance into the service, Lieut. LYNN J. WALKER, Wykoff.

Mississippi

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. DUDLEY R. MOORE, Cockrum; GEORGE R. STORM, Philipp.

To Del Rio, Texas, for duty, from Fort Riley, Lieut. CLEVELAND DAVID, Morgan City.

To Fort Oglethorpe, for instruction, Lieut. CHARLES H. HARRISON, Philadelphia.

To Rochester, N. Y., for duty, from Camp Pike, Capt. ERSKINE P. ODENEAL, Biloxi.

Missouri

To Camp A. A. Humphreys, Accotink, Va., as sanitary inspector, from Fort Riley, Capt. EDWARD S. SMITH, Macon.

To Camp Grant, Rockford, Ill., for instruction, Lieut. JACOB J. KENNEDY, Frankford.

To Camp Lee, Petersburg, Va., to inspect surgical equipment, and upon completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis.

To Fort Monroe, Va., for duty, Lieut. ALOIS E. TUREK, St. Louis.

To Fort Riley for instruction, Lieuts. JOHN H. MARTYN, Cuba; ELMER E. WALDO, Hannibal; ERNEST F. HARRISON, Kennett; ELIJAH Y. PARE, Leeton; HENRY M. STRACHAN St. Louis; from Camp Grant, JACOB J. KENNEDY, Frankford.

To Kansas City, Mo., Aviation Section, Signal Corps, for duty, Lieut. SAM E. ROBERTS, Kansas City.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieuts. REX L. DIVELY, SAMUEL H. SNIDER, Kansas City; JAMIE C. THOMPSON, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Sheridan, Lieut. JOHN R. ELLIOTT, Clarksdale.

To Washington, D. C., Surgeon-General's office, Capt. GREENE D. McCALL, Fulton.

Montana

To Del Rio, Texas, for duty, from Fort Riley, Capt. SPIES V. WILKING, Butte.

To New York City, Bellevue Hospital, for instruction, and on completion, *to Camp Lee,* for duty, from Fort Oglethorpe, Lieut. FERRIS L. ARNOLD, Billings.

Nebraska

To Camp Dodge, Des Moines, Iowa, for duty, Lieut. THOMAS E. ATKINSON, Muhlen.

To Fort Oglethorpe, for instruction, from Fort Monroe, Capt. WILLIAM N. ANDERSON, Omaha.

To Fort Riley for duty as instructor, from Fort Riley, Major JOHN P. LORD, Omaha; Lieut. WESLEY C. BECKER, Papillion.

New Hampshire

To Camp Wheeler, Macon, Ga., for *assignment to duty,* from Camp Wheeler, Major HENRY L. STICKNEY, Manchester.

New Jersey

To Camp Lee, Petersburg, Va., for duty, Lieut. AUGUSTUS L. L. BAKER, Dover; from Columbus Barracks, Lieut. STERNE MORSE, Boonton; from New York City, Lieut. AARON G. BALDWIN, East Orange.

To Camp Wheeler, Macon, Ga., for temporary duty, Capt. JESSE D. LIPPINCOTT, Newark.

To Fort Oglethorpe for instruction, Lieuts. THOMAS W. PHILLIPS, Camden; HERMAN L. SHEEHE, Jersey City; JAMES M. TORRENCE, Phillipsburg.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, from Columbus Barracks, Lieut. STEPHEN CAMPBELL, Woodbury.

To New York City, Cornell Medical College, *for instruction* in military roentgenology, from Fort Riley, Lieut. NEIL C. STEVENS, Morristown.

New Mexico

To Fort Bayard, N. M., for duty, Lieut. EMMER P. DAVID, Tyrone.

New York

To Army Medical School, Washington, D. C., *for instruction,* Capt. LESLIE M. WILKINS, Dexter; Lieuts. HENRY B. BOLEY, Brooklyn; JAMES P. FITZGERALD, Clayton; CHARLES G. IRISH, Lancaster; MALCOLM TURNER MUNKITTRICK, WILLIAM F. WIGGINS, New York City; WILLIAM M. EDMONDS, Tonawanda.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Capt. WILLIS S. COBB, Corning.

To Camp Bowie, Fort Worth, Texas, as divisional psychiatrist, from San Antonio, Lieut. JOHN J. HUGHES, Mount Vernon.

To Camp Custer, Battle Creek, Mich., for temporary duty, from Camp Jackson, Lieut. LEWIS H. TAFT, New York City.

To Camp Dix, Wrightstown, N. J., for temporary duty, on completion of his course at New York City, Major MARTIN B. TINKER, Ithaca. For duty, Capt. EDWARD H. PERSHING, Woodmore, Long Island.

To Camp Meade, Annapolis Junction, Md., for temporary duty, from New York City, Lieut. HENRY M. THOMAS, New York City.

To Camp Sevier, Greenville, S. C., Aviation Mobilization Camp, for duty, Lieut WILLIAM H. TAYLOR, Brooklyn.

To Camp Sherman, Chillicothe, Ohio, from Camp Sherman, Capt. REUBEN J. HELD, New York City. As a member of a board for the purpose of examining the command for nervous and mental diseases, from Ann Arbor, Capt. REEVE TURNER, New York City.

To Fort Oglethorpe for instruction, Capt. JAMES P. HUNT, New York City; Lieuts ARTHUR J. O'CONNER, Brooklyn; HARRY E. WHEELOCK, Jamestown; HERMAN LEVISON, JOHN L. SENGSTACK, New York City; from Fort Oglethorpe, Lieut. LOUIS GOLD, Brooklyn

To Governor's Island, N. Y., Coast Defenses, from Fort Oglethorpe, Lieut. CARSON C. FAULKNER, Arena.

To Hoboken, N. J., for duty, from Camp Cody, Lieut. HARRY C. SALTZSTEIN, New York City.

To Lakewood, N. J., for duty, from Camp Upton, Lieut. GUSTAVE A. BRAUN, Brooklyn.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieuts. JACOB H. HIRSCH, Haverstraw; HERMAN B. PHILIPS, MAURICE M. POMERANZ, New York City; from Fort Riley, ORVILLE B. CHANDLER, Poughkeepsie. For duty, Lieuts. FREDERICK C. KELLER, LAWRENCE J. OSBORNE, New York City; from Fort Oglethorpe, Lieuts. ROLAND P. BLYTHE, GEORGE A. KOENIG, BERNARD L. ROBINS, CORNELIUS J. TYSON, JOHN H. WYSKOFF, New York City; from Fort Riley, Lieuts. CHARLES C. DARLINGTON, CHARLES H. NAMMACK, New York City. For intensive training, Lieut. BERTRAM P. BROWN, Brooklyn. Neurological Institute for instruction, Lieut. FREDERICK P. SCHENKELBERGER, Collins; for intensive training, Lieut. ELIAS C. FISCHBEIN, Senyea. Roosevelt Hospital for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM L. GROGAN, Rome.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Lieut. OTTO C. PICKHARDT, New York City.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Dodge, Lieut. ALOYSIUS M. MULHOLLAND, New York City.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Army Medical School,* for duty, Lieut. ADOLPH E. VOEGELIN, Brooklyn; on completion *to Philadelphia for further instruction* and on completion *to Camp Jackson* for temporary duty, Lieut. HAROLD K. BELL, Brooklyn; on completion *to Walter Reed General Hospital* for duty, Lieut. JAMES L. FAGAN, New York City.

To San Antonio, Texas, Kelly Field, to examine command in his specialty, from Camp Travis, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

To San Francisco, Calif., Letterman General Hospital, from Portland *Ranch, Lieut.* RAE W. WHIDDEN, New York City.

To Washington, D. C., Surgeon-General's office, Major ALFRED E. COHN, New York City. Aviation Section, Signal Corps, Medical Research Board, Aviation Section, Signal Corps, *from Chanute Field,* and on completion *to his sick leave,* Capt. CONRAD BERENS, JR., New York City.

To his home and to the inactive list of the Medical Reserve Corps, Lieut. CHARLES GOTTLIEB, New York City.

To his home and honorably discharged from the *Medical Reserve* Corps, on account of physical disability which existed prior to his entrance into the service, Capt. JAMES E. HOLDEN, Collins; Lieuts. EDWARD C. EHLERS, LYMAN J. SPALDING, New York City.

North Carolina

To Camp Hancock, Augusta, Ga., for duty, Lieut. FREDERICK H. LINTHICUM, Charlotte.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieuts. ALTON C. CAMPBELL, Raleigh; CARL M. VAN POOLE, Salisbury.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. GEORGE F. BULLARD, Elizabethtown.

To Fort Oglethorpe, for instruction, from Fort Monroe, Capt. THOMPSON FRAZER, Asheville. For instruction, Capt. ARTHUR T. PRITCHARD, *Asheville; Lieut.* LUCIUS V. DUNLAP, Albemarle.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Baltimore, Lieut. FRANK R. RUFF, Duke.

To their homes and honorably discharged from the Medical Reserve Corps on account of physical disability which existed prior to entrance into the service, Lieuts. ISRAEL W. MAYERBERG, Selma; CHARLES T. ROEBUCK, Williamston.

North Dakota

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, *on* completion *to his course at New York City,* Capt. JAMES P. AYLEN, *Fargo.*

To Rantoul, Ill., Aviation Section, Signal Corps, for duty, Lieut. KNUTE O. KNUDSON, Glenburn.

Ohio

To Army Medical School, Washington, D. C., for instruction, Lieuts. HENRY R. BAREMORE, JR., ROY B. LUCE, Akron; WILLIAM E. DWYER, PAUL F. FINCH, Cleveland; WILLIAM H. MORGAN, Columbus; ALBERT W. McCALLY, Dayton; NATHAN C. HATFIELD, Fostoria; FRANK S. VAN DYKE, Hammondsville; CHARLES A. S. WILLIAMS, Marietta; VICTOR R. TURNER, Newark; JAMES D. COUPLAND, Norwalk; ALFRED B. MILLS, Portsmouth. For duty, Lieut. FREDERICK A. EULER, Cleveland.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. WILLIAM H. PARKER, Wellston.

To Camp Sherman, Chillicothe, Ohio, as Division Psychiatrist, and to examine the command for mental and nervous diseases, from Camp Sherman, Lieut. JOHN D. O'BRIEN, Canton.

To Camp Wadsworth, Spartanburg, S. C., as orthopedic surgeon, and as consultant *in such orthopedic cases as may be referred to him* by proper authority, from Camp Meade, Lieut. ALLEN N. WISELY, Ada.

To Dayton, Ohio, McCook Field, Aviation Section, Signal Corps, for duty, Lieuts. JAMES W. ALLBRITAIN, KENNETH A. CLOUSE, PAUL A. DAVIS, Columbus; ARNO E. BOHM, Montville; REX W. BEARD, Pioneer.

To Fort Oglethorpe, for instruction, Capt. THOMAS FOSTER, Wooster; Lieuts. HAROLD F. KOPPE, Logan; FRANCIS W. THOMAS, Piqua; from Garen City, Lieut. RUDOLPH S. REICH, Cleveland.

To Milwauke, Wis., Milwaukee County Hospital, for duty, from Columbus Barracks, Capt. JOHN W. MEANS, Columbus.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. SIDNEY D. FOSTER, Toledo; on completion *to his proper station,* from Columbus Barracks, Lieut. EDMUND R. BRUSH, Zanesville.

To Rochester, Minn., Mayo Clinic, for instruction and on completion to Camp Doniphan, for duty, Lieut. CLARENCE G. BOZMAN, Hebron.

To Rockefeller Institute, N. Y., for instruction, and on completion to Camp Wadsworth, for duty, from Columbus Barracks, Capt. SYLVESTER J. GOODMAN, Columbus.

To Takoma Park, Washington, D. C., for temporary duty, from Columbus Barracks, Major FRANK WINDERS, Columbus.

Oklahoma

To Camp Doniphan, Fort Sill, Okla., for duty, Lieut. WILLIAM W. D. AKERS, Ada; from Fort Riley, Lieut. HARL F. VANDEVER, Lahoma.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sill, Lieut. WILLIAM R. BARRY, Bradley.

To Dallas, Texas, Love Field, Signal Corps, Aviation School, for duty, Lieuts. LEVI MURRAY, Milfray; GROVER C. MOORE, Wagoner.

To Fort Bliss, Texas, headquarters of the military police, from Fort Riley, Lieut. WILLIAM W. BRODIE, Tulsa.

To Fort Leavenworth, Kan., for duty, from Camp Doniphan, Capt. BENJAMIN H. BROWN, Muskogee.

To Fort Oglethorpe for instruction, Lieut. JAMES E. ADAMS, Chandler.

To Fort Riley, for instruction, Lieuts. ADELBERT H. BENSON, Faxon; ARTHUR G. HUNT, Howe; GUY P. McNAUGHTON, Miami.

To San Antonio, Kelly Field, Aviation Section, *Signal Corps, for* duty, Capt. JESSE G. MARSHALL, Canton; Lieuts. MILES L. LEWIS, Ada; MILTON H. EDENS, Anadarke; EDWARD L. MILLER, Grainola; WILLIAM C. FASHEE, Grandfield; HENRY C. LLOYD, Hobart; WALDO B. M. B. NEWELL, Hunter; ESLEY E. LAWSON, *Oakwood;* THOMAS L. LAUDERRALE, Oklahoma City.

Oregon

To Portland, Ore., Aviation Section, Signal Corps, for duty with that unit, and as medical member of examining board and recruiting officer, Capt. JOSEPH L. McCOOL, Portland.

Pennsylvania

To Army Medical School, Washington, D. C., for instruction, Lieuts. MICHAEL G. DEWEY, Ashland; EDWARD E. MARSH, Centralis; A. BOYNTON NEVLING, Clearfield; BARNETT H. COOPER, Glen Lyon; RICHARD YOFFE, Harrisburg; FRANKLIN C. BRUSH, WILLIAM H. STONER, SYDNEY L. *WINGRADE, Philadelphia;* ROBERT E. BARTON, Pine Grove; ABRAM V. HICKS, JOHN A. LOGAN, JOHN L. STEFFY, Pittsburgh; JAMES CLINTON HAWKINS, McKees Rocks; WILLIAM W. WILKINSON, Meadville; ROBERT J. FLYNN, Scranton; ARTHUR W. THOMAS, Waynesboro; AUSTIN L. CORT, Wilson; GEORGE W. MELLON, Woodlawn.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. JESSE H. SWICK, Beaver Falls; WILLIAM H. ANNESLEY, Philadelphia.

To Camp Beauregard, Alexandria, La., for temporary duty, on completion of his course at New York City, Capt. WILLIAM C. HEISEY, McKeesport.

To Camp Bowie, Fort Worth, Texas, for duty, Lieuts. JOHN P. KENNEDY, JOHN M. WELCH, Philadelphia.

To Camp Dix, Wrightstown, N. J., for duty, from New York City, Capt. PERCY DELONG, Philadelphia.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, from Philadelphia, Major CHARLES A. E. CODMAN, Philadelphia. For temporary duty, Lieut. MORRIS H. TINDALL, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Lieut. JOHN W. BOGGS, Philadelphia; from Fort Oglethorpe, Lieut. JOHN J. DONOHUE, Frackville.

To Camp Hancock, Augusta, Ga., for temporary duty, Capt. CHARLES H. WEBER, Philadelphia.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. MARLEY G. ALBRIGHT, Philadelphia.

To Camp Lee, Petersburg, Va., to inspect orthopedic work being conducted at that camp, and on completion *to his proper station,* Major JAMES T. RUGH, Philadelphia. For duty, Lieuts. JAMES R. ST. CLAIR, Alexandria; CLAUDE E. SNYDER, Altoona; NATHANIEL W. WINKELMAN, Bridgeville; FRANK C. WILLARD, Clarendon; PERRY C. SMITH, New Brighton; REUBEN H. PEARLMAN, Pittsburgh; HARRY M. KRAEMER, Scranton; CHARLES H. SILMAN, St. Mary's; from Fort Oglethorpe, Lieut. FRED B. WILSON, Beaver.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. JOHN W. CONRAD, Philadelphia.

To Camp Pike, Little Rock, Ark., for examining the command, from Camp Sevier, Lieut. EDWIN H. ERNSY, Philadelphia.

To Fort Oglethorpe for instruction, Capts. ESTES PAINE, Clifton Heights; FREDERICK B. HARDING, Tamaqua; Lieuts. WAYNE L. SNYDER, Brooksville; FRANK C. PRATT, Fredericksburg; JAMES A. McCRACKEN, Norristown; DeFORREST BALLOU, Jr., Philadelphia; ROBERT J. CAMPBELL, Pittsburgh; JACOB W. E. ELLENBERGER, Wilkinsburg; from Baltimore, Lieut. JOHN H. BENNETT, York; from Fort Monroe, Lieut. WILLIAM H. HERR, Lancaster.

To Governor's Island, N. Y., Coast Defenses, from Fort Oglethorpe, Lieut. J. MERLE EVERWINE, Clymer.

To Newport News, Va., for duty, Lieuts. FREDERICK W. BYROD, Oberlin; STANLEY P. REIMANN, Philadelphia; FRED C. LARIMORE, Pittsburgh; ROBERT A. KNOX, Washington.

To New York City, Cornell Medical School, for instruction in military roentgenology, from Camp Meade, Lieut. THOMAS M. McMILLAN, Jr., Philadelphia. Neurological Institute for instruction, Lieuts. HOWARD H. HAMMAN, Greensburg; EDWARD P. CLARK, Pittsburgh; SIDNEY KALLAWAY, Shamokin.

To Philadelphia, Evans Dental Institute, for instruction, Lieut. FRANCIS S. CHAMBERS, Mt. Airy, *Philadelphia;* on completion *to his proper station,* from Camp Taylor, Lieut. HOMER P. PROWITT, Washington.

To Portland, Me., Coast Defenses, from Fort Oglethorpe, Lieut. JOHN W. MANN, *Pittsburgh.*

To Washington, D. C., Surgeon-General's Office, from Camp Lee, Lieut. WILLIAM J. EZICKSON, Philadelphia.

South Carolina

To Army Medical School, Washington, D. C., for instruction, Lieut. SAMUEL E. WHEELER, Columbia.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieuts. HARVEY M. McLURE, Bishopville; JAMES A. HAYNE, CARL A. WEST, Columbia; JOHN K. G. TUTEN, Furman; JAMES S. FOUCHE, Ninety Six.

To Camp Sevier, Aviation Section, Signal Corps, for duty, Lieut. WILLIAM E. WHITE, Greenville.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. AUGUSTINE S. WEEKLEY, Bamberg.

To Fort Oglethorpe for instruction, from Baltimore, Lieut. H. MADISON ROSS, Chester.

Tennessee

To Camp Lee, Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. JAMES L. BRYAN, Nashville.

To Fairfield, Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Capt. GEORGE E. CAMPBELL, Elizabethtown; Lieut. ERNEST B. BOWERY, Fordstown.

To Fort Oglethorpe for instruction, Lieuts. SAMUEL HUNT, Knoxville; CONRAD O. BAILEY, Normal.

To his home and to the inactive list of the Medical Reserve Corps, Lieut. JOSEPH P. DELANEY, Arrington.

Texas

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. NEWELL W. ATKINSON, Alice.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Capt. FRANK HARRISON, Ralls.

To Camp MacArthur, Waco, Texas, Aviation Section, Signal Corps, for duty, from Camp MacArthur, *Lieut. JOHN POTTS, Fort Worth.*

To Fort Oglethorpe, for instruction, Lieut. CHARLES H. WARREN, Gainesville.

To Southern Department, for assignment to duty, Capt. DAVID B. McGEE, Cameron.

To San Antonio, Texas, Kelly Field, Aviation Section, Signal Corps, for duty, Capt. JOHN F. NOOE, Boerne; Lieuts. JAMES A. WILKINSON, Blooming Grove; ALBERT L. MONDRICK, Bryan; JAMES R. RISINGER, *Buffalo Gap;* ERASTUS B. WHEAT, Cooper; WILLIAM R. SMITH, Hende; DUTCH K. ROBISON, Itasca; JAMES S. RUSHTON, *Morrill;* CHARLES P. YEAGER, San Antonio; GEORGE P. BAWLS, San Augustine.

To Wichita Falls, Texas, Call Field, Aviation Section, Signal Corps, for duty, Lieuts. WARREN M. WIER, Houston; DANIEL H. REEVES, Roby.

To his home and to the inactive list, Lieut. DeWITT C. BRUKES, San Antonio.

Utah

To Fort Riley, for temporary duty, Lieut. FRANK K. BARTLETT, Ogden.

To Western Department, for assignment to duty, Lieut. CLARENCE G. STIGALL, Salt Lake City.

Vermont

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. FRANK C. ANGELL, Randolph.

To Fort Riley, for instruction, from Camp Grant, Capt. GEORGE L. BATES, Morrisville.

To Rockefeller Institute, New York, for instruction, and on completion to his proper station, from Camp Upton, Capt. WILLIAM STICKNEY, Rutland.

Virginia

To Army Medical School, Washington, D. C., for instruction, Lieuts. JOHN A. BOARD, Altavista; GEORGE C. RHUDY, Elk Creek; ARCHILLES D. TYREE, Iron Gate.

To Camp Lee, Petersburg, Va., for temporary duty, Capt. ROBERT H. WRIGHT, Richmond.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. LESLIE C. BURTON, Clayville.

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. EZRA E. NEFF, Chilhowie.

To Fort Oglethorpe, for instruction, Lieut. THOMAS R. COLLIER, Hampton; from Richmond, Lieut. WILLIAM B. HOPKINS, Richmond.

To Newport News, Va., for duty, from Camp Meade, Lieut. ROBERT A. DAVIS, Newport News.

To New York City, Bellevue Hospital, for instruction, and on completion *to Fort Oglethorpe*, for instruction, Lieut. CHARLES C. TEUNANT, Charlottesville.

To Washington, D. C., Government Hospital for the Insane, for intensive training, Lieut. WILLIAM A. TRIVETTE, Petersburg.

To the inactive list, from Richmond, Major ALFRED GRAY, Richmond.

Washington

To Camp Lewis, American Lake, Washington, for temporary duty, Capt. WILMOT DE LEE READ, Tacoma.

To Fort McPherson, Ga., for duty, from Douglas, Ariz., Lieut. RALPH HENDRICKS, Spokane.

To Western Department, for assignment to duty, Lieut. ELIPHALET T. PATEE, Pullman.

Honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. DANIEL R. CAMPBELL, Pullman.

West Virginia

To Army Medical School, Washington, D. C., for instruction, Lieuts. DAVID T. WILLIAMS, Martinsburg; ALVIN McCLUNG, Pickers

To Fort Oglethorpe for instruction, Capt. HERBERT H. HAYNES, Clarksburg.

To Spartanburg, S. C., for duty, from Camp Gordon, Lieut. RICHARD H. EDMONDSON, Morgantown.

To their homes and honorably discharged from the Medical Reserve Corps, Lieut. THADDEUS C. McCLUNG, Ronseverte; on account of physical disability which existed prior to entrance into the service, Lieut. CLERMONT E. PARK, Parkersburg.

To Ann Arbor, Mich., for intensive training, Capt. OSCAR C. WILLHITE, Lake Geneva.

Wisconsin

To Camp Taylor, Louisville, Ky., for duty, Capt. BURT E. SCOTT, Berlin; Lieut. CHARLES R. FARNHAM, Milwaukee.

To Camp Wheeler, Macon, Ga., for duty, from Fort Riley, Capt. MILTON W. HALL, Mondovi.

To Fort Des Moines, Iowa, for duty, Lieut. WALTER J. JONES, Rockland.

To Mercedes, Texas, for duty with the Sixteenth Cavalry, from Fort Riley, Lieut. WAYNE F. COWAN, Stevens Point.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, Majors ROBERT C. BROWN, CURTIS A. EVANS, Milwaukee; Capts. HENRY B. HITZ, PHILIP F. ROGERS, FRANCIS A. THOMPSON, Milwaukee; Lieuts. ORVILLE R. LILLE, FRANCIS B. McMAHON, EDWARD L. THARINGER, Milwaukee. Milwaukee Auditorium for duty, from Fort Riley, Lieuts. GEORGE M. FITZGERALD, Milwaukee; JOHN E. RUETH, Sun Prairie.

To New York City, Neurological Institute, for instruction, Lieut. ADAM L. CURTIN, Milwaukee. *Roosevelt Hospital*, for instruction, and upon completion *to Camp Lee*, Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. CORNELIUS J. CORCORAN, Milwaukee.

To Rantoul, Ill., Aviation Section, Signal Corps, for duty, Lieut. DREXEL L. DAWSON, Rice Lake.

To Rochester, Minn., Mayo Clinic, for instruction, and upon completion *to his proper station*, from Fort Snelling, Lieut. GEORGE F. SPENCER, Evansville.

Honorably discharged, Lieut. GEORGE E. PETERSON, Waukesha.

To his home and honorably discharged, Lieut. LEE W. CAREY, Winnebago.

For a Canadian Federal Department of Public Health.—Commenting editorially on the establishment of a federal department of public health with a minister in the cabinet, a question now being earnestly considered in Canada, the *Public Health Journal* says: "We have pleasure in serving notice on the federal government that unless it can be clearly established that this matter must wait until after the war, and further, that other less vital questions shall not receive prior consideration because of political expediency, we are prepared to show that public opinion is in sympathy with the earliest possible action directed to the end that federal public health matters may be dealt with by a federal department of public health. Furthermore, federal or national public health questions relating to infant welfare, industrial hygiene, immigration, social hygiene, mental hygiene, housing, sickness insurance, etc., are problems which do not demand attention only when a government sees fit to deal with them. They are basic things in social welfare and must not be sacrificed to political expediency."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Tri-County Tuberculosis Hospital.—Announcement is made that the proposed tuberculosis hospital for Kings, Tulare and Kern counties will be in the Sierra foothills, not far from Springville.

Personal.—Dr. Francis F. Jackson has been elected one of the commissioners of public health and safety of Oakland. ——Dr. Wilbur A. Sawyer, Sacramento, has resigned as secretary of the state board of health, to accept military service, and will, it is said, be succeeded by Dr. Wilfred H. Kellogg, San Francisco.

Tentative Report on Social Insurance.—The State Social Health Insurance Committee of the Los Angeles County Medical Association has made a tentative report to the society, setting forth forty-four propositions which should be included in a scheme of state health insurance, which the committee approves in principle. Their scheme is based on the propositions of the Committee of State Social Insurance of the American Association for Labor Legislation. The insurance is to be compulsory for wage workers earning less than $100 per month and voluntary for those earning more. It provides that the state shall care for the unemployed, and that the state and employers shall care for all wage workers getting less than $40 per month, as well as all casual employees. Benefits are to be paid in case of sickness or accident or for death not covered by the workmen's compensation. The committee consists of Drs. William Wenzlick, Ross Moore and T. Perceval Gerson.

ILLINOIS

Laboratory for Hospital.—The Lutheran Hospital, Moline, has installed a well equipped pathologic laboratory which is under the direction of Dr. Maud J. O. Vollmer, Moline.

Smallpox in Bellville.—Dr. Buenaventura H. Portuondo, chairman of the Bellville Board of Health, states that there are about twenty-five cases of smallpox in the city at present. Inspections of all schools have been made and all pupils have been vaccinated.

Chicago

Medical Women Entertain.—The women students of medical colleges in Chicago, and the women interns of the city were the guests of the Medical Women's Club and the After Dinner Club, February 13, at a dinner in the Chicago College Club.

Ear, Nose and Throat Men Meet.—At the annual meeting of the Otological, Laryngological and Rhinological Society, Dr. Frank Allport was elected president; Dr. Charles H. Long, vice president, and Dr. Edward P. Norcross, secretary-treasurer.

Unlicensed Practitioners Fined.—Ernest P. Handl is reported to have pleaded guilty to practicing medicine without a license and to have been fined $50 and costs, January 16. Mrs. Bertha Roeske is said to have pleaded guilty, February 7, to practicing medicine without a license, and to have been fined $25.

New Pavilion for Hospital.—The Mothers' Aid Pavilion was formally transferred to the Chicago Lying-In Hospital, January 5. The building has been erected at a cost of more than $90,000, and is now at the services of the public and of the medical profession. Dr. Joseph B. De Lee, is physician in charge.

Red League to Open Clinic.—Physicians, actors and clergymen, came together, February 7, at the first meeting of the Red League in a campaign to restrict venereal disease. The league has decided to open a venereal clinic at 118 West Grand Avenue, supplementing the work of the clinic recently established by the city.

Physicians Lose Licenses.—The licenses to practice medicine granted to Drs. Leon T. Burgess, Isaac Walton Hodgens and Arthur L. Blunt are said to have been revoked, January 9, by Francis W. Shepardson, director of registration and education. In each case the revocation was due to violation of the Medical Practice Act.

Medical Relief Agencies Need Money.—Twelve organizations of the hospital and medical group of the Chicago Council of the Social Agencies at a meeting held, February 2, expressed the need for $200,000, for the work of this year, beyond what they can reasonably expect to raise from the regular source of income. Each of these organizations is to start a campaign to raise the money needed.

New Zealand Child Welfare Worker in Chicago.—Dr. F. Truby King, New Zealand, noted authority on child welfare and general superintendent of the Royal New Zealand Society for the Health of Women and Children, visited Chicago last week. A meeting was held in his honor, February 5, by the child welfare division of the Council of National Defense, and the Elizabeth McCormick Memorial Fund, at which Dr. King outlined the means by which New Zealand has attained the honor of having the low record for infant mortality of 50 per thousand. Dr. King believes that environment beats heredity and that ignorance is not confined to the poorer classes of society. Girls should be instructed for motherhood because they are girls and not because they are financially dependent or independent. This work is not a charity but a necessity for the healthful maintenance of the race. Dr. King also spoke at the City Club, and before the nurses and physicians of the health department, and of the Chicago Municipal Tuberculosis Sanatorium.

Personal.—Dr. Travy Hamilton Clark has been appointed president of the medical section of the National Fraternity Congress.——Dr. Frank Smithies has been appointed associate professor of medicine in the School of Medicine of the University of Illinois.——Dr. William W. Quinlan, medical referee of the Mutual Life Insurance Company of New York, has been made supervising referee of the company for the territory west of Chicago.——Dr. James M. Hancock was shot in the left temple, eye and right arm by robbers who were endeavoring to escape the police, February 2. Dr. Hancock is under treatment at the Hospital of St. Anthony and hopes are entertained for his recovery.——Major John M. Dodson has succeeded Dr. Frank Billings as medical aide to the governor of Illinois.——Lieut. Karl J. Henricksen, M. R. C., assigned to the Twentieth Engineers, who was formerly on duty in the office of the attending surgeon, Chicago, was one of the rescued passengers of the ill-fated *Tuscania*.——Dr. William E. Buchler, founder and president since the organization of the Illinois Masonic Hospital Association, declined reelection at the annual meeting, February 5.

INDIANA

Personal.—Drs. Davis L. Field and John H. Baldwin have been appointed members of the Jeffersonville Board of Health. ——Dr. Clark E. Day has been appointed police surgeon of Indianapolis.

Section Meeting.—A meeting of the eye, ear, nose and throat section of the Indiana State Medical Society, was held at the Hotel Severin, Indianapolis, February 6 and 7. At this meeting the Indiana Society of Ophthalmology and Otolaryngology was organized.

Vital Statistics.—According to statistics 62,538 babies were born in Indiana in 1917 and there were 39,416 deaths. Tuberculosis caused 3,883 deaths; pneumonia, 3,639; measles, 543; typhoid fever, 481; scarlet fever, 144; infantile paralysis, 33; smallpox, 13; 410 persons committed suicide; 182 murdered; deaths due to external causes, 2,211 men and 707 women.

New Building for School of Medicine.—Dr. C. P. Emerson, dean of the Indiana University School of Medicine, has consulted with Governor Goodrich in regard to the construction of the new school of medicine to be built on the grounds of the Robert W. Long Hospital. The estimated cost of the new building is $365,000. The present plan is for the state to buy the old medical college building at approximately $150,000, and for the university to pay the remainder of the cost of the new building.

State Board Meeting.—At the annual meeting of the State Board of Medical Registration and Examination, held in Indianapolis, January 8, it was decided that hereafter no examination for license to practice medicine in Indiana will be given in any other language than English. Dr. James M. Dinnen, Fort Wayne, was elected president, to succeed Dr. William A. Spurgeon, Muncie; Dr. A. B. Caine, Marion, was elected vice president; Dr. William T. Gott, secretary (reelected), and Dr. Moses S. Canfield, Frankfort, treasurer.

Smallpox.—On January 22, there were 192 cases of smallpox in Indianapolis, and the authorities are discussing the need of an ordinance making vaccination compulsory. In the cases among adults, 99.8 per cent. of the individuals had never been vaccinated. Not a case has been reported among schoolchildren since vaccination was made compulsory.——It is reported that there are 100 cases of smallpox in Knightsville and that State Health Officer John N. Hurty has notified Health Officer F. G. Thornton, that unless the town takes steps to stop the spread of the disease, the entire town will be quarantined.——More than 200 cases of smallpox have been reported in Bicknell within the last two months.

KENTUCKY

Personal.—Major Arthur T. McCormack, M. R. C., Bowling Green, has been assigned to permanent duty as chief health officer of the Panama Canal, succeeding Col. Albert E. Truby, M. C., U. S. Army. Major McCormack left for his new post of duty, February 1.——Dr. Arthur H. Keller has been elected secretary of the health board of Paris and reelected city health officer.

LOUISIANA

New State Board Officers.—At the annual meeting of the State Board of Medical Examiners, held in New Orleans, the board was reorganized and the following officers were elected: president, Dr. Leon J. Menvill, Houma; vice president, Dr. Thomas E. Wright, Monroe, and secretary-treasurer, Dr. Everard W. Mahler, New Orleans.

Bureau of Social Diseases.—Carrying out the suggestion of Surgeon-General Gorgas of the U. S. Army, the Louisiana Board of Health has established a bureau of social diseases, which is to make a study of every phase of the social evil and report to the board. The bureau is composed of the members of the state board and nine other physicians, including Dr. Robin of the New Orleans Board of Health.

New Officers.—At the annual meeting of the Orleans Parish Medical Society, January 14, Dr. Paul J. Gelpi was installed as president, and Dr. Paul T. Talbot as secretary. The service flag of the society, containing fifty-six stars, was presented by Dr. John Callan, but the flag-raising ceremonies were postponed.——At the annual meeting of the Shreveport Medical Society the following officers were elected: president, Dr. Joseph E. Knighton; vice presidents, Drs. Arthur A. Herold and J. Garnett Yearwood, Caspiana; secretary, Dr. Willis P. Butler, and treasurer, Dr. Walter B. Hunter. A service flag is to be placed in the society headquarters, in the Shreveport Hospital.

MARYLAND

Personal.—Dr. Herschel J. Strickler has been appointed health officer for the district, to serve during Dr. Charles T. Buckner's absence on military duty.——Dr. Lewellys F. Barker, Baltimore, was reelected president of the National Committee for Mental Hygiene at its tenth annual meeting, recently held in New York.

University of Maryland Unit Ordered Into Training.—The members of the base hospital unit of the University of Maryland have received orders from the Surgeon-General's Office to leave at once for Camp Meade, Camp Dix or Camp Devens for training preparatory to service in Europe. Dr. Archibald C. Harrison, Baltimore, is organizing the unit, which comprises about 200 men.

Dr. Mall Eulogized.—Memorial services to Dr. Franklin P. Mall, late professor of anatomy and embryology in Johns Hopkins Medical School, marked the last public tribute of respect to the first of the group of physicians who, in 1893, established the school and inaugurated a new era of medicine in America. About 200 persons attended the services which were held at Homewood and presided over by President Frank J. Goodnow of the university.

Whooping Cough Epidemic.—Brooklyn, Anne Arundel County, is experiencing the worst epidemic of whooping cough in its history. Not only are young children by the score suffering with the disease, but many adults are also affected. Fully 75 per cent. of the schoolchildren in Brooklyn have been affected. The disease broke out several weeks ago and has spread throughout the section, reaching Curtis Bay, Fairfield and nearby points. Some of the cases among the adults are of the most dangerous type, and pneumonia frequently follows.

MASSACHUSETTS

Infantile Paralysis.—An appeal for funds to the amount of $18,000 has been made to continue the work of the commission of Harvard Medical School of Infantile paralysis. The figures show that 1,118 children were examined by the commission during the year ended Nov. 20, 1917, of whom 402 had infantile paralysis prior to 1916, 670 during 1916 and 46 during 1917. Cases followed up at the homes by orthopedic nurses numbered 645; by state field workers of the commission, 520; by the Boston Instructive District Nursing Association for the commission, 125; state clinics were held in thirteen different cities with a total attendance of 950, and 155 clinics were held at the Children's Hospital, Boston, with an attendance of 3,889.

MINNESOTA

Mayo Fund Turned Over to State.—January 17, the Wells and Dickey Company, Minneapolis, turned over to State Treasurer Rines, bonds and cash amounting to $1,693,000, representing the trust fund established by Drs. Charles H. and William J. Mayo, Rochester, for carrying on medical research work at the University of Minnesota.

Personal.—Dr. Walter J. Marcley, Minneapolis, has been granted indefinite leave of absence from the City and Hopewell hospitals, that he may do special work in tuberculosis in France. Dr. Frank H. Hacking has taken charge of the work at the hospitals during Dr. Marcley's absence.——Dr. Christian S. Reimestad has been appointed health officer of Brainerd, succeeding Dr. Werner E. Hemstead, resigned to accept the position of physician at the State Infirmary, St. Cloud.

NEW JERSEY

Contract for Sanatorium Awarded.—The board of supervisors of Rockland County have awarded the contract for the construction of the new tuberculosis hospital for $42,372.

Personal.—Dr. William L. Holt, health officer of Maplewood, has been appointed full time health officer of Beloit, Wis.——Dr. John J. McDonald has resigned as superintendent of the Jersey City Hospital.

Provision for Sick Soldiers.—The commissioners of Jersey City have authorized Mayor Haig to expend $20,000 in fitting up additional hospital quarters, because of the great increase in population surrounding Jersey City as a consequence of the establishment of Camp Merritt and other camps within a short distance of the city.

Clinic Awarded for Drug Users.—The citizens' committee appointed by Mayor Gillen of Newark to investigate the subject of habit-forming drugs in the city, and to make recommendations for the elimination of this evil, have recommended that a clinic be established in the City Dispensary, for the study and treatment of narcotic addicts, so that immediate help may be given indigent addicts, and "a progressive study be made to guide in the committee's future deliberations."

NEW YORK

County Tuberculosis Hospitals.—By the laws of 1917, the statute that makes it mandatory for every county having a population of more than 35,000 to provide a tuberculosis hospital, affects twenty counties. The department has inspected sites in all except two of these twenty counties, where the authorities have appointed site committees. Sites have been approved in the following eleven counties: Niagara, Livingston, Broome, Herkimer, Nassau, Rockland, Chautauqua, Wayne, Otsego and Rensselaer counties.

Long Island Physicians Meet.—At the twentieth annual meeting of the Associated Physicians of Long Island, held at the Long Island College Hospital, January 26, the following officers were elected: president, Dr. Lefferts A. McClelland, Brooklyn; vice presidents, Drs. William A. Hulse, Bay Shore; Henry Goodwin Webster, Brooklyn, and Harris A. Houghton, Bayside; secretary, Dr. James Cole Hancock, Brooklyn, and treasurer, Dr. Edwin S. Moore, Bay Shore. The morning sessions consisted of medical and surgical clinics; in the afternoon a clinical demonstration of the Carrel-Dakin system was made and the day was concluded with a banquet at the Hamilton Club.

Bill for Reorganization of State Board of Charities.—There is a bill before the legislature providing for the reorganization of the State Board of Charities. Instead of an unpaid board of twelve members, appointed by the governor from different districts, the bill provides for a board of nine members, at least one of whom shall be a woman and of whom three are to be paid. They are to be appointed from the state at large and must have special qualifications specified by law. The three paid members are the president and the chairmen of two new bureaus within the board, the Bureau of Mental Deficiency and the Bureau of Dependent Children. The specialists provided for are an educational expert, a physician who shall have special knowledge in tuberculosis, one having special knowledge in psychiatry, a general practitioner and a lawyer.

Public Health Nursing.—During 1917 the state was divided into thirteen districts, each in charge of a public health nurse and a nurse trained in the after-care of infantile paralysis, according to *Health News* (January, 1918). Working in connection with the sanitary supervisors of their districts, they investigated forty-nine outbreaks of communicable diseases, made tuberculosis surveys in five counties, conducted child welfare exhibits in eighteen municipalities, and established ten little mothers' leagues in the state, with a membership of 415. Birth registration was investigated in seventeen municipalities and rural health surveys were made in seventeen others. Food exhibits and talks in connection with them were made by the nurses in twenty-five communities, a different community being visited each week. The after-care nurses had an average of 293 poliomyelitic patients to visit in addition to seventy-two patients who were brought to hospitals for operation. One nurse was assigned to the supervision and instruction of midwives. The nurses will arrange for tuberculosis clinics in their districts, to be conducted by experts, and will maintain a proper follow-up system in the homes.

New York City

Harvey Society Lecture.—The sixth lecture of the Harvey Society series was delivered, February 9, by Dr. J. Gordon Wilson, professor of otology in the University of Chicago, on the "Effect of High Explosives on the Ear."

Gifts to Columbia University.—Among the gifts to Columbia University announced at a recent meeting of the trustees of that institution is one of $3,000 for research work in war problems from an anonymous donor and another of $5,000 from Clarence Mackay for surgical research work.

The National Committee on Mental Hygiene.—This organization has recently held its tenth annual meeting in New York, when the following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice presidents, Drs. Charles W. Elliot, Walter B. James, New York, and William H. Welch, Baltimore; treasurer, Mr. Bannard; medical director, Dr. Thomas W. Salmon, New York; associate medical director, Dr. Frankwood E. Williams.

Ask Congress to Run Quarantine Station.—Secretary of the Treasury McAdoo has asked Congress for an appropriation of over $1,500,000 for the New York Quarantine Station. Of this sum $1,395,275 is asked for the purpose of purchasing the property of the station and $275,000 is for the purpose of operating the station during 1919. The bill asking this appropriation is accompanied by a statement showing why the federal government should own and operate this quarantine station.

Court Sustains Privacy of Health Department Records.—Following the refusal of the health department to accede to the request of Charles M. Higgins to furnish certified copies of certificates of all the thirty-three fatal cases of tetanus occurring in the city in 1915, application was made to the supreme court, County of Kings, for a writ of mandamus to compel the commissioner of health to furnish the copies requested. The supreme court has handed down a decision denying the application and dismissing the proceedings.

Pneumonia Deaths Continue to Increase.—The records of the New York City Health Department show that for the week ending February 9, the mortality from all causes was 1,772, 355 of which were due to pneumonia, while for the preceding week there were 1,736 deaths of which 325 were due to pneumonia. The highest number of deaths from pneumonia recorded on any one day this winter was on February 5, the day following the extremely severe cold wave, when there were 73 deaths reported as due to this disease.

Military Night at Academy.—The meeting of the New York Academy of Medicine, February 7, was devoted to papers on military subjects, relative to the Camp Upton Base Hospital, commanded by Major Jay D. Whitham. The papers presented were, "Classification and Results of Treatment of Pneumonia at Camp Upton," by Dr. Russell L. Cecil, director of laboratory; "Measles from the Standpoint of Military Medicine," by Dr. John Francis Hackett, Mansfield Depot, Conn., in charge of contagious wards; "Hyperthyroidism in the Recruit," by Dr. Harlow Brooks, chief of medical service, and "Autoinoculation in Syphilis," by Dr. [illegible]. Klau[illegible], in charge of the syphilis wards."

Personal.—Dr. Charles Norris has been appointed chief medical examiner (coroner) for a probationary period of three months. In order to assume the duties of his office he has obtained a six months' leave of absence from his position as director of laboratories. Dr. Douglas Symmers will succeed Dr. Norris as director of laboratories.——Dr. Russel A. Hibbs of the University of Louisville has been appointed professor of orthopedic surgery in the college of Physicians and Surgeons of Columbia University.——Dr. Eugene W. Caldwell of Bellevue Hospital Medical College has been appointed to the newly established chair of roentgenology in the same institution.——Dr. Mark J. Schoenberg has been appointed attending surgeon to the Hermann Knapp Memorial Eye Hospital.——Capt. Henry James, M. R. C., who has been stationed at Base Hospital No. 15 in France since last July, has returned to this country on six months' leave of absence. ——Dr. Charles D'Artois Francis, Brooklyn, is reported to have been committed to the Kings Park State Hospital, January 29.

PENNSYLVANIA

Upstate Hospital Burns.—The Williamsport Private Hospital has been destroyed by fire. The blaze was caused by an overheated furnace. All the patients were rescued. The loss is $50,000.

Personal.—Dr. Maud Conyers Exley has been appointed a member of the dispensary staff of the Harrisburg Hospital, succeeding Dr. James E. Dickinson, transferred.——Dr. Edward S. Dougherty, Ashley, was painfully injured when an automobile in which he was riding crashed into a telegraph pole near Liberty.

Rag Shops Must Get License.—In accordance with an act passed by the 1917 legislature, effective January 1 of this year, the board of health has completed arrangements for issuing licenses to dealers in rags, used clothing and waste paper. The purpose of the act is to have that business conducted in a more sanitary manner.

Philadelphia

Personals.—Dr. Edward A. Treacy has been appointed assistant medical inspector of the department of health and charities with a salary of $1,400.——At a meeting of the board of trustees, Prof. Charles H. La Wall, chemist for the state dairy and food commission, was elected dean of the pharmacy course in the Philadelphia College of Pharmacy, to succeed the late Dr. Joseph P. Remington.

New Medical Club Election.—As the result of a protest that the recent election was in technical violation of the by-laws of the organization, filed with the board of governors of the Medical Club of Philadelphia, the board has called for another election. The technical point raised was that the name of the member elected did not appear on the official ballot as required by the by-laws of the organization.

Centenary of Dr. Wistar.—The centenary of the death of Dr. Caspar Wistar was celebrated, February 1, by the American Philosophical Society, of which he was president from January, 1815, until his death in January, 1818. Papers were read on Dr. Wistar "As a Citizen and Philosopher," by Dr. I. Minis Hays, "As a Human Anatomist," by Dr. George M. Piersol, and "As a Comparative Anatomist," by Dr. William Scott.

Personal.—Dr. D. P. Hillegass has been appointed a member of the State Bureau of Medical Examination and Licensure.——Dr. Max H. Bochroch has been appointed visiting physician to the psychopathic ward of the Philadelphia General Hospital.——Plans to celebrate the fiftieth anniversary of Dr. Anna E. Broomall's association with the Woman's Hospital are now being made by a committee of women physicians of the hospital. Dr. Broomall is consulting physician at the hospital.——Dr. E. V. McCollum of Johns Hopkins University will deliver the annual Packard Lecture of the Pediatric Society on February 12, the subject being "Growth." ——Dr. A. Wiese Hammer has been appointed surgeon to the Pennsylvania Railroad.——Dr. Thomas J. Mays, who was stricken at his home with apoplexy, is still in a serious condition.

TENNESSEE

State Board Election.—At the annual meeting of the state board of health, held in Nashville, Dr. Evander M. Sanders, Nashville, was elected president, succeeding Dr. Rufus E. Fort, Nashville, and Dr. Walter J. Miller, Johnson City, was elected vice president.

Sanatorium Workers.—An active campaign is being made in East Tennessee to raise a fund of $50,000 for the establishment of an East Tennessee sanatorium. The sanatorium corporation owns a farm of 125 acres near Knoxville, and other property valued altogether at about $30,000.

Hospital Notes.—The Lincoln Memorial Hospital was purchased by the city of Knoxville, December 13, for $65,000. Payment for the property will be made from an appropriation of $100,000 for the improvement of hospital facilities in Knoxville. The institution will be joined by the Knoxville General Hospital whereby the capacity of the latter will be increased by nearly 100 patients. The old medical college is to be converted into a home for nurses, and the second and third floors of the laboratory will be converted into a maternity hospital.——Baird-Dulaney Hospital, Dyersburg, has purchased property to be used as an annex to the institution. The annex will be ready for occupancy, June 1, and when completed will give the hospital a capacity of seventy-five beds.

TEXAS

Tuberculosis Clinic.—The Dallas Association for the Study and Prevention of Tuberculosis has raised $3,500 through the sale of Red Cross Christmas seals. This sum will be the basis for the establishment of a clinic, which will be kept open every day and will be devoted to treatment and education.

Personal.—Dr. Arvel R. Ponton, Post, has disposed of his interest in the Post Sanitarium and has moved to Lubbock. ——Dr. Ovie J. Colwick, Fort Worth, has been appointed field director of rural sanitation of the state board of health.—— Dr. T. B. Fisher, for many years health officer of Dallas, has been appointed a member of the state board of health to succeed Dr. W. D. Littler, resigned.——The resignations of Drs. R. L. Aiguer, E. A. Werner, and Gano, have been accepted by the health department of Dallas.

CANADA

Promotion.—Lieut.-Col. Samuel H. McKee, Montreal, has been promoted to the full rank of colonel. He went to the front shortly after the outbreak of the war, took part in the Dardanelles campaign and also saw service on the western front, being created a C. M. G. in recognition of meritorious services. He is at present in command of the eye and ear hospital at Folkstone, England.

Reconstruction.—The fight is on again to see who is "top dog" in the control of the returned Canadian soldier—the Military Hospitals Commission or the Army Medical Corps. The Army Medical Corps alleges that there are not sufficient beds in the Toronto Military District, and the Hospitals Commission points out there are nearly a thousand extra available, but that number includes two hospitals which are outside the jurisdiction of the Toronto Military District. It is probable that the government will order an investigation of the matter.

Hospital News.—Capt. J. E. Freeman, Kingston, Ont., has placed his entire farm of 100 acres at the service of returned soldiers who are convalescing at Kingston. The farm is offered as a patriotic gift for the period of the war. It will be under the control of the Military Hospitals Commission. ——The latest census of the Military Convalescent Hospitals of Canada, taken January 15, shows 11,667 men under supervision. The figures include 9,660 men in convalescent hospitals, 1,319 in sanatoriums undergoing treatment for tuberculosis, and 688 who are being cared for in other hospitals. ——Fire broke out in the Spadina Military Hospital, Toronto, January 24, but the patients, under the direction of the officers, had the flames under control before the arrival of the fire bridge.

Personal.—Major Gilbert Royce, Toronto, who has been overseas with the University of Toronto Base Hospital for nearly three years, has been appointed commandant of the Canadian Hospital at Bromley, Kent, England.——Major Samuel H. McCoy, formerly of St. Catherine's, Ontario, but more recently of Toronto, who has been overseas some time, has been appointed commandant of Yarrow Hospital, Broadstairs, England.——Dr. Alan E. McKibbin, Ottawa, a graduate of the University of Toronto, has returned from overseas to Toronto, and has been assigned to duty at the Whitby Hospital for Soldiers in Ontario.——Capt. Edwin Campbell McArthur, Greenwood, B. C., is now with the University of Toronto Base Hospital at Basingstoke, England.——Capt. William E. Sinclair, M.B., Toronto, 1914, has been awarded the military cross for his work at Paaschendaele. His home is in Meaford, Ontario, and he is in charge of No. 5 Field Ambulance.

Discussion of Venereal Diseases.—The Academy of Medicine, Toronto, held a special session on the prevalence of venereal diseases in the Toronto Military District. Capt. Gordon A. Bates gave the following figures: In the four weeks ending Sept. 30, 1917, out of 13,000 men examined, 132 cases developed; in October, out of 12,000 men, there were 117 cases; in November, out of 13,000 men, there were only 91 cases, and in December, out of 12,775 men, there were only 75 cases. Of the men who actually had venereal disease, a large percentage had developed their infection previous to joining the army. Figures obtained among men recently drafted in Toronto showed that from January 3 to 17, out of 1,400 men, exactly 49 cases were found. Thus, the amount of disease among draftees, who are practically members of the civilian population, is just ten times what it would be in a body of troops of equal number. Dr. Bates was able to state definitely that the percentage of syphilitics among men returned from the front was less than the 12 per cent. given by Dr. Herbert K. Detweller as existing in the wards of the Toronto General Hospital in the first three months of 1917. It would seem, then, that there is more disease outside the army than within.

GENERAL

A Warning.—Officials of the Rogers Electric Laboratories Company write that for the past few years a man by the name of L. C. Sykora has been representing himself to the medical profession as connected with their company and has been practicing innumerable frauds, and that he also uses the names of other companies in his schemes. They add that one of his methods is to borrow electrical apparatus which he does not return.

The Neurological Bulletin.—The first number of a new publication, to be known as the *Neurological Bulletin*, has just been issued. It is devoted to clinical studies of nervous and mental diseases in the neurologic department of Columbia University. It is edited by Dr. Frederick Tilney, assisted by Dr. Louis Casamajor and an editorial board. Case reports, as presented in the regular staff conferences of the neurologic department, will be published, to include discussions by the clinical staff. The first number, containing thirty-four pages, contains seven articles. Particularly valuable is the discussion of a summary and differential diagnosis blank for diseases of the nervous system, by Dr. Oliver S. Strong.

Development of Cooked Food Service in New York City.—That new social conditions are arising out of the food and labor situation is shown by the response of the public to the new food service plan being established to deliver cooked meals to homes. The demand for this service comes from the better class of apartment houses and separate homes on the upper west side, within motor radius of the first station at 215 West Seventy-Ninth Street, but the founders are making every endeavor to place the low-priced service within the reach of the industrial population. Two weeks before its opening day (February 1), the first station was registered almost to its full capacity of 500 persons per day. Other stations are in contemplation, so that all parts of the city may have hot, well balanced meals, fulfilling all the requirements of the food administrator and endorsed by him, delivered to the homes.

FOREIGN

Deaths in the Profession Abroad.—G. Weiss, professor of general pathology and dean at the University of Messina, aged 73.——Major P. D. Siccardi, assistant at the Clinic for Industrial Diseases at Milan, succumbed to laboratory infection while studying spirochetosis icterohemorrhagiae.——Capt. G. Lerda, instructor in operative surgery at the University of Turin.——According to a notice in the *Norsk Magazin for Lægevidenskaben*, Prof. B. Krönig of Freiburg is dead, aged 60. The Freiburg gynecologic clinic and maternity in his charge, it will be remembered, was the pioneer in "twilight sleep" and in roentgen treatment of cancer with exceptionally large doses.

CORRECTIONS

In the Selective Service Regulations, THE JOURNAL, Feb. 2, 1918, page 320, Section 187, the line reading "Registrants with contagious, communicable, reportable diseases should be ordered before the local board for examination until they are discharged by the Boards of Health" should read "Registrants . . . should not be ordered, etc." The line following, "Registrants recovering from diphtheria should be ordered, etc.," should read "should not be ordered."

LONDON LETTER

LONDON, Jan. 14, 1918.

Torpedoing of Hospital Ship

The Hospital Ship *Rewa* was torpedoed and sunk in the English Channel about midnight, January 4, on her way home from Gibraltar. There were 287 wounded on board. All were safely transferred to patrol vessels, and there were only three casualties among the crew, three Lascars being missing. She was displaying all the lights and markings required by the Hague Convention, and she was not, and had not been, within the so-called "barred zone" as delimited in the statement issued by the German government, Jan. 29, 1917. It may be remembered that in order to stop the sinking of hospital ships by the Germans, under the groundless pretext that they were used to carry soldiers or munitions, an agreement was entered into with the German government—evidently another scrap of paper—that hospital ships should carry a Spanish naval officer to insure that they were not so used, and would then be immune. Before this agreement, hospital ships ran without lights at night, risking collisions in order to avoid the greater danger of the German pirates. Trusting to the agreement, the *Rewa* was lighted up and going at about 4 knots. A torpedo struck with a terrific crash right on the hospital cross. The conduct of the captain and other officers was admirable; orders were given and carried out with splendid accuracy, and boats were successfully launched while the ship was sinking. There were about thirty patients in cots, and these were first placed in the boats. The four women nurses were then taken off. When every one else had left the ship, the officers followed. About ten minutes after the last boat was loaded, the ship plunged head foremost and disappeared. Wireless messages that had been dispatched were picked up by mine sweepers and other ships, and the boats after being adrift from between one and two hours were picked up in the moonlight. In accordance with the agreement, a Spanish officer had traveled from Saloniki, and left the vessel at the last port of call, Gibraltar. Hospital ships are so distinguished that there is no possibility of confusing them even at a distance of several miles, either during the day or at night with other vessels. They are painted white, have a broad band of green from stem to stern about 4 feet deep, huge red crosses painted amidships and red crosses on each bow. At night large vessels, such as the *Rewa*, besides carrying the usual navigation lights have several hundreds of lights burning. The sides of the ships are picked out with a belt of green electric lights about 3 feet apart, and the red crosses are illuminated by brilliant white electric lights. The *Rewa* was 456 feet long, and would have been seen at a distance of at least 5 miles. She is the sixth British hospital ship known definitely to have been torpedoed without warning during the last ten months. In each case the crime was committed during the night.

Retirement of Sir Alfred Keogh

With great regret, the secretary of state for war has decided to allow Surgeon-General Sir Alfred Keogh to resume his work as general executive officer to the Imperial College of Science and Technology. He will be replaced by Col. T. H. J. C. Goodwin, until recently assistant director of medical services to the British Recruiting mission in America. When the war began, Sir Alfred Keogh had retired from the army. His services were placed by the governors of the Imperial College of Science and Technology at the disposal of the War Office, and, although, during the last three years they have on several occasions requested that he should return to his former duties, owing to the development of matters of great national urgency that are delayed by his absence, it has not hitherto been possible to spare him. It is largely due to Sir Alfred Keogh's prevision, intimate knowledge, and administrative grasp that the army medical service has been such a success. His successor, Colonel Goodwin, has served through the period of Mons, the Marne and Ypres, and by his mission to America has fostered the fraternal feeling between the members of the profession on each side of the Atlantic.

The Increase of Cerebrospinal Fever

The Local Government Board has issued a report by its medical officer, Sir Arthur Newshelme, on the prevalence of cerebrospinal fever. The number of cases which occurred are as follows: 1913, 305; 1914, 315; 1915, 2,566; 1916, 1,306; 1917 (to June 30 only), 1,085. These figures relate only to the civilian population. Among soldiers, 1,136 cases of cerebrospinal fever were reported in England and Wales in 1915, and 893 in 1916. Corresponding with the increase in the number of cases is a great increase in the mortality. In the five years 1901-1905, the total deaths from cerebrospinal fever in England and Wales numbered 395, or an average of 79 annually. In the next five years the annual number of deaths averaged 122. In the three following years the annual deaths averaged 146. In 1914 they had increased to 194, in 1915 to 1,974, and in 1916 they fell to 369. In the recent epidemic, England and Wales suffered much less severely than other countries in which cerebrospinal fever has become epidemic. In 1915, the mortality among the troops occurred earlier in the year than that in the civilian population. The case mortality was about 53 per cent., both in the civilian and in the military population. But little is known of the conditions under which epidemics arise. In this respect there is some resemblance between influenza and cerebrospinal fever. Both diseases occur at irregular intervals in widespread epidemics, embracing whole continents; while in the interepidemic periods, sporadic cases, or even small outbreaks occur, which do not appear to possess the power to spread, and consequently die out. In influenza, however, insusceptibility to attack is unusual; in cerebrospinal fever it is the rule, the difference possibly being bridged over by minor catarrhal or febrile attacks due to the meningococcus, in which meningeal invasion fails to occur.

PARIS LETTER

Paris, Jan. 10, 1918.

Death of Professor Lepage

Dr. G. Lepage, 58 years of age, is dead. He was associate professor of obstetrics at the University of Paris and obstetrician to the hospitals. Intern in 1888, he became successively chief of the laboratory, chief of the clinic, and *répétiteur* at the Baudelocque Clinic. In 1894 he was appointed obstetrician to the hospitals, continuing his teaching work, and in 1898 he was made *professeur agrégé* of obstetrics. In these two services, which he directed successively at the hospitals of the Pitié and Boucicaut, he was given charge of a course in a supplementary clinic. When war was declared he offered his services as a surgeon and has been thus engaged at two of the military hospitals of Paris, besides organizing a maternity service elsewhere.

In collaboration with his master, Ribemont-Dessaignes, Lepage published a treatise on obstetrics that was authoritative. He also published a practical treatise on obstetric antisepsis, and edited several chapters of the "Medico-Chirurgical Practice." Original articles were published in the *Annales de Gynécologie*, etc. By numerous communications and actual participation in discussions, besides his scientific publications Lepage contributed to the prosperity of the Société d'obstétrique, de gynécologie et de pédiatrie de Paris, of which he was secretary-general from 1902 to 1907. He also was secretary-general of the Association générale des médecins de France from 1906 to 1911.

Dressings That Do Not Touch the Wound

At a recent meeting of the Société de pathologie comparée, Drs. Polonowski and Durand described their method of wound treatment. In order to avoid contact of the dressings with the wound in cases requiring irrigation, they conceived the idea of isolating the wound from the gauze by a protective apparatus, consisting of a wire netting molded to fit over the wounded area. The edges rest on a small roll of absorbent cotton fastened to the netting. The irrigating tubes do not touch the wound. Compresses placed on the wire netting protect against dust. The fluids run off into a waterproof bag. The apparatus is immobilized with adhesive plaster or a mixture of colophonium, 40; ligroin, 5; turpentine spirits, 2, and alcohol, 20. This procedure obviates contact of the drainage tubes and wicks with the wound, and adds greatly to the well-being of the patient. Dressings are changed seldom because the irrigation keeps the wound in good condition and it can be inspected by raising the outer dressings. This method of dressing permits of subjecting the wound alternately to irrigation and to heliotherapy. It is adaptable to all methods of treatment. Fitted out with this apparatus, the wounded can be evacuated painlessly into the interior. The neutral solution of chlorinated soda can be replaced advantageously by an isotonic solution of sodium chlorid. The resulting cicatrix is comfortable and supple.

Etiology of War Tachycardia

Dr. Octave Crouzon, physician to the hospitals, and Dr. Abel Mauger recently demonstrated to the Société médicale des hôpitaux de Paris that a large number of cases of tachycardia are caused by an infectious lesion of the heart, organic and latent, existing quite often before the war, and caused to flare up by the war, of which the sole clinical manifestation is an acceleration of the pulse, without any other objective sign. Therefore, these cases should not always be regarded as simple functional disturbances, but one must think of an organic basis in those with antecedent rheumatism, typhoid or other recent severe infection. Consequently, from the military point of view, these cases should be considered for service provisionally or at times even definitely, as representing only limited fitness.

Treatment of the Itch, Tinea and Vermin in Horses by Sulphuration

At a recent meeting of the Academy of Medicine, Mr. T. A. Clayton called attention to the good results obtained in the treatment of the itch, occurring among soldiers, by a gaseous mixture resulting from burning sulphur in a closed oven. The mixture is known as "Clayton's gas" and was employed successfully by the English in the South African War. In April, 1915, the British military authorities called on Mr. Clayton to delouse the soldiers by this method and also to combat the itch in man and beast. The men wear a mask and stay half an hour in the sulphuration room. They are treated with their clothes on. Not only itch mites, lice and nits are destroyed, but also all parasites and vermin affecting the skin. The *Bulletin* of the academy publishes an illustrated description of the procedure as applied to horses of the French cavalry. The government had a stable built for the purpose with ten stalls, although the apparatus could sterilize twenty horses at one time. The head of the horse projects, but he wears a hood continuous with the lining of the stall, only the nose being left exposed. Forty horses can thus be freed of itch and external parasites per day with this stable, and the success has been complete with seventy horses to date. None were washed or shaved beforehand, and each wore his harness.

Cerebral Tetanus

At a recent session of the Academy of Medicine, Dr. Léon Bérard, associate professor on the Faculty of Medicine of Lyons, and Dr. Auguste Lumière called attention to a new form of clinical tetanus, characterized by cerebral symptoms, which had not been observed previously. The case in question was one of late tetanus. The cerebral complication did not appear until a week or two after the onset of the contractures. The symptoms consisted of hallucinations, delirium, excitement and phobias, with nocturnal exacerbations, coming on suddenly and with maximum severity, persisting for eight days at least, and then gradually lessening in severity. There was no elevation of temperature. Bérard and Lumière believe that these are wholly toxic manifestations.

Marriages

Capt. Francis Wallace Meagher, M. R. C., U. S. Army, Brooklyn, on duty at base hospital, Kelly Field, South San Antonio, Texas, to Miss Emily Winifred Rose of Brooklyn, January 12.

Lieut. Charles Benjamin Kendall, M. R. C., U. S. Army, Columbus, N. M., to Miss Nell Gordon of Chester, Pa., at El Paso, Texas, December 3.

Lieut. Louis Nelson West, M. R. C., U. S. Army, Raleigh, N. C., to Miss Eliza Eagles (Betsey John) Haywood of Atlanta, Ga., January 18.

Hope Thomas Martin Ritter, M.D., Allentown, Pa., to Miss Sarah Snyder of Phillipsburg, Pa., in Philadelphia, January 9.

Charles Robert Graham, M.D., Brownville, Pa., to Miss Beulah Minerva Glosner of New Castle, Pa., January 15.

Lieut. Randolph Dade, M. R. C., U. S. Army, to Miss Ruth Baynham, both of Hopkinsville, Ky., January 17.

George Augustine Sheehan, M.D., to Miss Laurette Regina Ennis, both of Brooklyn, January 23.

Marcus Bryed Wilson, M.D., Huron, S. D., to Miss Agnes E. Collyer of Wilmette, Ill., January 30.

James Marion Smith, M.D., to Miss Inez Brant, both of Los Angeles, January 23.

Victor Lupu Schrager, M.D., to Mrs. Jean Rowland both of Chicago, January 25.

Deaths

Heinrich Stern, M.D., New York City; St. Louis College of Physicians and Surgeons, 1899; aged 49; a Fellow of the American Medical Association, and at one time chairman of the Section on Pharmacology and Therapeutics; a member of the American Public Health Association, American Urological Association, and New York Academy of Medicine; secretary of the *American College of Physicians;* visiting physician St. Mark's Hospital and the Methodist Episcopal Home; gold medalist of the Medical Society of the State of New York; founder and editor of the *Archives of Diagnosis;* writer on biologic chemistry, diagnosis and diseases of nutrition; died at his home, January 30, from cirrhosis of the liver.

Benjamin Ralph Swan, M.D., San Francisco; College of Physicians and Surgeons in the City of New York, 1868; aged 80; a Fellow of the American Medical Association; from 1875 to 1890 professor of pediatrics in the University of California; a veteran of the Civil War; for a long time medical referee for the Mutual Life Insurance Company of New York; formerly surgeon of the Pacific Mail Steamship Company, and coroner of San Francisco County; died at the *Adler Sanitarium, San Francisco, January 27,* from pneumonia.

Jacob Franklin Lewis, M.D., Little Rock, Ark.; Eclectic Medical Institute, Cincinnati, 1872; Bennett Eclectic Medical College, Chicago, 1880; aged 64; a member of the State Board of Medical Examiners of Kansas in 1879, of the Kansas State Board of Health in 1889, and of the *Arkansas State* Board of Health in 1908; *past* president and secretary of the Arkansas Eclectic Medical Society; was found dead from heart disease in his office, January 24.

Barna Edmond Radeker, M.D., Deposit, N. Y.; College of Physicians and Surgeons in the City of New York, 1874; aged 68; a member of the Medical Society of the State of New York, and for several years president of the Boone County Medical Society; a director and treasurer of the Deposit Electric Company, and president of the Deposit Telephone Company; died at his home, January 6, from paralysis.

Robert Newland Blanchard, M.D., Jamestown, N. Y.; University of Buffalo, N. Y., 1881; aged 62; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died, January 18, from cerebral hemorrhage.

Died in the Service
Capt. Frank Keator, M.D., M. R. C.,
U. S. Army, 1879-1918
(*See The Journal, Feb. 2, p. 336*)

Eugene Harold James, M.D., Harrisburg, Pa.; University of Pennsylvania, Philadelphia, 1879; aged 60; formerly a Fellow of the American Medical Association; once the president of the Harrisburg Academy of Medicine; surgeon for the Harrisburg Hospital, and for twenty years the local surgeon of the Pennsylvania Railroad; died at his home, January 27.

William E. Rodman, M.D., Hodgenville, Ky.; University of Louisville, Ky., 1870; aged 70; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association, and secretary of the Larue County Medical Society; health officer of Larue County; died at his home, January 25.

Albertus Joseph Burge, M.D., Iowa City, Iowa; State University of Iowa, Iowa City, 1900; aged 46; a Fellow of the American Medical Association; a member of the Western Surgical Association; for twelve years a member of the faculty of his alma mater; died at his home, February 2, from pernicious anemia.

Charles Henry Stoeckle, M.D., Ludlow, Pa.; University of Pennsylvania, Philadelphia, 1892; aged 50; formerly a member of the Medical Society of the State of Pennsylvania, and medical officer of the Army; formerly a member of the staff of the State Hospital, North Warren; died at his home, January 31.

Robert Love Moore, M.D., Columbia, S. C.; University of Maryland, Baltimore, 1896; aged 46; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; a specialist on diseases of the eye, ear, nose and throat; died in the Columbia Hospital, January 4.

Lurton D. Dillman, M.D., Connersville, Ind.; Medical College of Ohio, Cincinnati, 1878; aged 72; formerly a member of the Indiana State Medical Association; for several terms a member of the Connersville School Board; died in the Fayette Sanatorium, Connersville, February 1, from heart disease.

Reginald Mortimer Hutchings Banbury, M.D., Brooklyn; Long Island College Hospital, 1897; aged 42; died in the Brooklyn Hospital, January 28, from heart disease, four days after a fall on an icy sidewalk in which he sustained a compound fracture of the left leg above the knee.

Lieut. Francis Findley Hanbidge, M.D., M. R. C., U. S. Army, Ogdensburg, N. Y.; Jefferson Medical College, 1916; a Fellow of the American Medical Association; is reported to have died from pneumonia, about February 3, while on duty with the American Expeditionary Forces.

Albert W. Fleming, M.D., St. Louis; Missouri Medical College, St. Louis, 1887; aged 58; a Fellow of the American Medical Association; formerly professor of operative and clinical surgery in Barnes Medical College; died at his home, December 29, from lobar pneumonia.

Elmer S. Hull, M.D., Montgomery, Pa.; Jefferson Medical College, 1884; aged 56; a member of the Medical Society of the State of Pennsylvania; who had been staying in Augusta, Ga., for several months on account of ill health; died in that city, January 27, from cerebral hemorrhage.

Charles Newell Burton, M.D., Blue Earth, Minn.; University of Michigan, Ann Arbor, 1889; aged 52; formerly a Fellow of the American Medical Association; a member of the Minnesota State Medical Association; died at his home, February 1, from cerebral hemorrhage.

Nelson Mays, M.D., Richmond, Ky.; University of Louisville, Ky., 1866; aged 76; formerly a member of the Kentucky State Medical Association; died at the home of his daughter in Richmond, January 24.

James Horrace Wright, M.D., New Lexington, Ohio; Starling Medical College, Columbus, 1881; aged 58; a Fellow of the American Medical Association; formerly captain and assistant surgeon in the Ohio National Guard; died at his home, January 25, from cerebral hemorrhage.

Thornton P. Crowell, M.D., Nankin, Ohio; Western Reserve University, Cleveland, 1868; aged 71; a veteran of the Civil War; for many years a member of the local board of education and president of Orange township; died at his home, January 30, from cerebral hemorrhage.

Annie Louisa Conner, M.D., Mount Airy, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 42; a Fellow of the American Medical Association; a member of the staff of the Germantown and Woman's hospitals; died at her home, January 25.

Nelson Hoyt Chamberlain, M.D., Oakland, Calif.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; died in the Hahnemann Hospital, Chicago, January 20, from cerebral hemorrhage.

Harley Howard Emerson, M.D., Columbus, Ohio; Ohio Medical University, Columbus, 1904; aged 40; a Fellow of the American Medical Association; assistant medical examiner of the state industrial commission; died at his home, January 26, from asthma.

Richard Giles, M.D., Cold Spring, N. Y.; College of Physicians and Surgeons in the City of New York, 1882; aged 56; a member of the Medical Society of the State of New York; consulting surgeon to the Highland Hospital; died at his home, January 19, from myocarditis.

William A. Thompson, M.D., Cabot, Ark.; Barnes Medical College, St. Louis, 1904; aged 50; formerly a member of the State Medical Association of Texas, and a practitioner of San Antonio; died in a hospital in Little Rock, Ark., January 26.

Edward Dyer Ellis, M.D., Poultney, Vt.; Harvard Medical School, 1877; aged 67; formerly a member of the Vermont State Medical Society; for many years director of the First National Bank of Fair Haven, Vt.; died at his home, January 26.

William D. Hoge, M.D., Rayland, Ohio; Western Reserve University, Cleveland, 1889; aged 54; a Fellow of the American Medical Association, and a director of the People's Bank of Martin's Ferry; died at his home, January 20, from valvular heart disease.

Francis Gurney Bennett, M.D., Norwich, Pa.; Jefferson Medical College, 1889; aged 50; a Fellow of the American Medical Association; formerly a member of the medical staff of the Clearfield Hospital; died at his home, January 17, from pneumonia.

Homer H. Throop, M.D., Newport-Richie, Fla.; Northwestern University Medical School, 1880; aged 74; formerly of Jackson, Mich., and a member of the Michigan State Medical Society; died at his home, January , from chronic myocarditis.

Montrose Graham Tull, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1885; aged 58; formerly a Fellow of the American Medical Association; a specialist on diseases of the eye; died at his home, January 25, from pneumonia.

Mary P. Meyer Fleming, M.D., Baltimore; Baltimore Medical College, 1883; aged 84; said to have been the first woman to study medicine in Maryland; a pioneer suffragist of Maryland; died at her home, January 20, from pneumonia.

Lieut. Ivan Ellsworth Bellinger, M.D., M. R. C., U. S. Army, Sweet Home, Ore.; Williamette University, Salem, Ore., 1913; aged 30; on duty at Fort Riley, Kan., since December 10; died in that place, January 17, from pneumonia.

Charles Wingate Badeau, M.D., Dunedin, Fla.; New York University, New York City, 1869; formerly a resident of Passaic, N. J., and district physician for the fifth district, New York City; died at his home, January 3.

Julian Howard Evans, M.D., Sandersville, Ga.; Vanderbilt University, Nashville, Tenn., 1887; aged 50; a member of the Medical Association of Georgia; died at his home, January 24, from acute gastritis.

Manuel S. da Silva, M.D., Sacramento, Calif.; College of Physicians and Surgeons of San Francisco, 1901; aged 55; a native of Pico, Azores; died in the Sisters' Hospital, Sacramento, January 19.

Gustav A. Fischer, M.D., Chicago; University of Prague, Bohemia, 1871; aged 72; died at his home, January 31, from cerebral hemorrhage, formerly a member of the Illinois State Medical Society.

Cyrus E. Pringle, M.D., Pocahontas, Ark.; Missouri Medical College, St. Louis, 1883; aged 56; a member of the Arkansas Medical Society; died in Hopsy, Ark., January 22, from heart disease.

Frank Eugene Whitney, M.D., Rochester, N. H.; New York University, New York City, 1881; aged 64; for four years town physician; died at his home, January 20, from uremia.

Charles E. Baker, M.D., Genoa, Ohio; Columbus (Ohio) Medical College, 1881; aged 60; a member of the Ohio State Medical Association; died at his home, about January 20.

Jose Florene de F. Fernandez, M.D., New York City; New York University, New York City, 1894; died at his home, January 18, from cerebral hemorrhage.

Andrew J. Lappeus, M.D., Vina, Calif.; Northwestern Medical College, St. Joseph, Mo., 1887; aged 73; died in the Red Bluff (Calif.) Hospital, January 15.

John Simmons, Middleport, Ohio (license, Ohio, 1896); aged 85; a practitioner for thirty-two years; died at his home, December 25, from arteriosclerosis.

George B. Rowel, M.D., Orleans, Vt.; University of Vermont, Burlington, 18[illegible]; aged 72; died at his home, January 16.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[Foreword.—The article that follows is the sixth[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article VI]

FELLOWS' SYRUP, AND OTHER PREPARATIONS OF THE HYPOPHOSPHITES

By S. Q. Lapius, M.D.

We hope that it is clear to those who have read the several articles of this series that their purpose is to present evidence that will enable the reader to form a correct estimate of the literature employed in the exploitation of various nostrums. The distinction between mere assertion—however plausible, and from however eminent an authority—and evidence should again be emphasized. Satisfactory evidence rests on careful observation by those who are capable of accurately determining to what extent any changes that may be observed are due to the therapeutic agent employed and not mere accompaniments of such treatment.

When the Council on Pharmacy and Chemistry was organized in 1905 the greater part of the literature of the nostrums was so palpably misleading, the statements often so ludicrously false, that it was only necessary to call attention to this fact to have those claims collapse. As a result of the Council's work the exploiters of worthless nostrums have developed a greater degree of shrewdness in avoiding the easily exploded falsehoods. This has made it increasingly difficult to point out the exact statements on which many of the false claims now rest, even though the exploitation as a whole is as inherently dishonest as before. If a nostrum is worthless, any exploitation must be false and misleading in effect, even though not one single false direct statement is made.

A platitude may be given an appearance of importance if uttered in an impressive manner, and it may be employed to suggest far more than it categorically affirms. These two facts are appreciated by many nostrum exploiters and we find that they have adopted the impressive manner to secure attention, and the platitude to suggest far more than they could defend in direct statement. Thus we have the "lie with circumstance."

FELLOWS' SYRUP

A full page advertisement which has been appearing regularly for about a year and which must represent a good deal of money, is used to give an appearance of importance to a few words which, if printed in ordinary type, would either pass wholly unnoticed or would lead one to assume that something essential to the full meaning had been omitted. The statement, in full, reads:

> "Fellows' Syrup differs from other preparations of the hypophosphites. Leading clinicians in all parts of the world have long recognized this important fact. Have you? To insure results, prescribe the genuine ℞ Syr. Hypophos. Comp. Fellows'. Reject cheap and inefficient substitutes. Reject *preparations* 'just as good.'"

---

[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918.

The only direct statement contained in the advertisement is to the effect that many clinicians have observed that Fellows' syrup and other preparations of the hypophosphites are not alike. In truth, Fellows' is not like the better preparations of this type, since after standing it contains a muddy looking deposit that any pharmaceutical tyro would be ashamed of. Technically, then, the statement is true, but it is hardly credible that the manufacturer is paying for an entire page in a medical journal to make this statement without any attempt to suggest something else.

The advertising pages of six medical journals were examined in just the order in which they chanced to come to hand. In five of these the entire advertisement of Fellows' syrup was in the words just quoted; not a single word more. In one there was the further statement:

> "Not a new-born prodigy or an untried experiment, but a remedy whose usefulness has been fully demonstrated during half a century of clinical application."

These advertisements show that the exploiters of Fellows' Syrup are spending a great deal of money to induce physicians to prescribe the preparation, and it is equally evident that they wish to convey the impression that the preparation has some therapeutic value. Since we find nothing directly false, in the first mentioned advertisement at least, we must take the evident intent for consideration and determine what therapeutic value, if any, this preparation has, and whether it is advisable for physicians to employ it in any case.

The preparation, according to the statement just cited, has been in use for fifty years. As the exploiter of any preparation cites the most convincing evidence in his possession in support of his views, this claim may be assumed to be the strongest available, and if this evidence fails we must reject the contention as not proved. Here we face a dilemma, for examination of the literature used in the exploitation of Fellow's Syrup fails to disclose any evidence of the kind that we have described as satisfactory, and we are therefore forced to conclude that none has ever been found. By this it is not to be implied that no reputable physician has ever reported favorably concerning the therapeutic effects of this preparation. It is quite possible that an extensive literature of that sort might be found if one examined the older medical journals. But the day has passed when every improvement that follows the administration of a preparation is blindly attributed to the drug in question. Clinical research today is far more exacting.

We will assume that the reader who has investigated the question with an open mind will have come to the decision that the contention that Fellows' syrup is of especial therapeutic value is not proved. We might rest with that assumption and ask the clinician whether he is prepared to use a nostrum that has been before the medical profession for half a century without any satisfactory evidence having been gained that it possesses therapeutic value. We might ask him whether he would be willing to tell his patients that he was prescribing such a nostrum for them in the face of the absence of any such evidence of its value.

THE INERTNESS OF THE HYPOPHOSPHITES

But we prefer to go even further and show him that not only is there an entire absence of any evidence of its therapeutic value so far as we have been able to learn, but in addition there is an abundance of evidence that the hypophosphites are devoid of any such therapeutic effect as they were formerly reputed to have, and that, in fact, they are, so far as any effect based on their phosphorus content is concerned, singularly inert.

While we have thus far taken the Fellows' preparation as the subject of the discussion, we may take a broader view and examine the subject of the hypophosphites in general, and the phosphorus-containing substitutes that have been introduced from time to time. It hardly needs to be said that if the hypophosphites are without therapeutic value, it is impossible to give them value by combining them in a muddy-looking, ill-made preparation such as Fellows' Syrup. Such evidence was submitted to the medical profession in a report of the Council on Pharmacy and Chemistry which was published in The Journal, Sept. 2, 1916, p. 760, and we would strongly advise any one who is disposed to act on the suggestion contained in the advertisements of Fellows', and other hypophosphite preparations, to read that report in full and think the matter over before prescribing one of these nostrums. Quoting briefly from the report in question:

> "Although the overwhelming weight of evidence was against the probability that the hypophosphite preparations are of value as therapeutic agents, the Council thought it well to investigate the subject. Dr. W. McKim Marriott of Baltimore was therefore requested to review the evidence for and against the therapeutic usefulness of the hypophosphites and to conduct such experiments as seemed necessary."

The Council was not content to rest on the mere absence of evidence for the value of these preparations or any one of them, but sought to obtain evidence that would fulfill the conditions mentioned above, and in pursuance of this plan it secured the cooperation of a trained investigator, one who would work under the best of conditions for learning the truth. The results of Dr. Marriott's investigation were published in The Journal Feb. 12, 1916, p. 486, and should be read by everyone who has any interest in the problem. Lest some of our readers may fail to refer to the original of Marriott's paper we will quote briefly from it:

> "None of the subjects of the experiment experienced any effect whatsoever from the administration of the drug . . . Almost all of the ingested hypophosphite is eliminated unchanged. . . .
>
> "These experiments (Forbes) demonstrate conclusively that the hypophosphites possess no specific value as a source of phosphorus for the body. . . . It is doubtful if there are any conditions in which the body suffers from lack of phosphorus. Even should such conditions exist, phosphorus, in the form that it occurs in the ordinary foods, or as phosphates, is more efficient in supplying the deficit than hypophosphites that must be oxidized before utilization and which are only about 15 per cent. oxidized if at all. For example, half a glass of milk contains more available phosphorus than three large doses of hypophosphites of 15 grains each, as great a dosage as is usually given.
>
> "What, then, is the therapeutic value of hypophosphites? There is no reliable evidence that they exert a physiologic effect; it has not been demonstrated that they influence any pathologic process; they are not 'foods.' If they are of any use, that use has never been discovered."

The case seems to stand about like this: A nostrum maker spends thousands of dollars to tell physicians that his cloudy preparation is not like other preparations, and physicians are expected to accept that as convincing evidence that they should prescribe and their patients, perforce, take it. This too, in spite of the evidence gained by careful scientific investigators that the hypophosphites in fairly large doses contain less available phosphorus than half a glass of milk, and that there is no evidence available that they exert any therapeutic effects at all.

Should we take the meaningless statement of a nostrum maker, who does not submit evidence of any therapeutic value of his preparation—unless one can call certain careless habits of prescribing evidence—and assume the responsibility of prescribing a nostrum that according to all scientific evidence available is useless, and of no more effect than a few teaspoonfuls of milk, so far as its hypophosphite content is concerned? It may be argued that it possesses some value because of its bitter nature. We will not deny that it is bitter; so is strychnin, so is quinin, so are scores of simple drugs, but what physician would care to admit to his patients that he did not know how to prescribe a simple bitter, such as nearly every layman can select for himself, without recourse to a preparation such as Fellows' Syrup?

We have felt that it is not wholly satisfactory to discourage the use of a given nostrum without making an effort to assist the physician in choosing wisely in the treatment of the condition for which the nostrum is claimed to be useful. In the present instance, however, we fear that would prove a task beyond our powers, for the hypophosphites have been used in such a variety of conditions that the discussion would have to include nearly the whole materia medica if we were to follow our usual procedure.

Correspondence

NATIONAL LICENSURE FOR PHYSICIANS IN THE FEDERAL SERVICE

To the Editor:—I wish to voice the opinion of almost every physician with whom I have conversed on the granting of national licensure to all physicians in the medical service of the U. S. Army or Navy, enlisted in the Medical Reserve Corps, National Guard or regular Medical Corps. These men should be granted the privilege of practicing medicine in any place in the United States at the end of the war, without taking a state board examination. In my conversation with officers some say that they do not know whether or not they will go back to the place from which they came. Others, younger men, argue that they had not been given the time to take their state board examinations in the state in which they want to practice, but took them where they were taking their internship, and that that state does not reciprocate with their own state. As they might be in the service anywhere from three to five years, this would make state examinations more difficult than if they had taken them immediately after graduation.

If we are good enough to care for our soldiers, we certainly are good enough to practice in any state in the Union. We are showing our patriotism by serving our government, and each state of the Union ought to reciprocate by granting us a license. All physicians given an honorary discharge at the conclusion of the war should be granted the privilege of practicing medicine any place in the United States.

Lieut. Donald Brown, M.D., M. R. C., U. S. Army.

To the Editor:—Will you kindly inform me whether a medical officer of the U. S. Navy would be given a license to practice in civil life without taking the various state board examinations and, if this privilege is not extended by all the states, whether it is extended by any and, if so, which? In view of the rigid examinations necessary to pass in order to get a commission in the regular corps of the Navy and Army, it appeals to my mind that the states would be perfectly justified in assuming that all medical officers are mentally qualified and entitled to a certificate to practice and to obtain a license.

Eugene C. Lowe, M.D., Assistant Surgeon,
U. S. Navy, U. S. S. *Minnesota.*

[Comment.—The above letters are samples of many received by The Journal. The regulation of medical practice comes under the police powers of the state; the only way to accomplish what our correspondents desire is to secure favorable action on the part of each state. No state, so far as we know, recognizes the Medical Reserve Corps commission. Seven states—Alabama, California, Colorado, Illinois, North Dakota, Virginia and Wisconsin—register, without examination, retired officers of the Medical Corps.—Ed.]

"THE TAX ON OLEOMARGARIN"

To the Editor:—In The Journal, Jan. 19, 1918, p. 164, an editorial discusses the advisability of removing the special tax on colored oleomargarin, and quotes from one of the newspapers a paragraph in which, *inter alia*, it is stated that the fats used in the manufacture of butter substitutes are as nutritious as butter fat. While not specifically denying this statement, the editorial refers to the larger content of vitamins in butter fat, and so sets some opposition to the newspaper assertion, which, like most of such assertions, is made without careful inquiry.

Your editorial is in error, however, in saying that a substantial economic advantage will come to the mass of the people if the tax is taken off. I have been familiar for many years with the conditions surrounding the selling of butter substitutes. I was among the first of American chemists to assist in the control of the sale, and as chemist to the dairy and food commissioner of Pennsylvania, made, in association with Dr. William Beam, many hundreds of analyses of samples sold in Philadelphia and its vicinity. In the course of this work we devised the Leffmann-Beam method of distinguishing between butter fat and its substitutes, a method now official in France, Germany and the United States, and probably elsewhere. Our experience was that oleomargarin, when colored and otherwise prepared to resemble butter, always meets the ultimate consumer at prices so near that of the true article as to leave the profit almost wholly with the middleman. If the special tax is taken off oleomargarin, it is possible that the large department stores and the chain stores will label it correctly, but the small shops and food pedlers, from whom the wretched dwellers of the slums obtain their supply, will sell the article as butter at possibly a few cents below the ruling butter figures, but realize a large profit on their wholesale rate. Similarly, boarding houses, restaurants and even grand hotels will take advantage of the easy substitution, and place oleomargarin on the tables instead of butter, without notice to the customer either by direct word or in the bill. "Bread and butter" will be charged, but "bread and oleo" be furnished. After all, the discussion is academic, for the agrarian interests of the country are much too powerful to permit the experiment to be made. A very large part of the difficulty in introducing oleomargarin as a substitute for butter along lines in which its difference would be of less moment is the obstinacy of the middle class women and servants. Among that curious population of eastern Pennsylvania, commonly known as the "Pennsylvania Dutch," butter is often served without salt and without color. It looks like lard, and is not generally appetizing to those who see it for the first time. On the other hand, butter and butter substitutes intended for certain West India islands must be colored almost a mahogany red to be salable.

There is a large supply of animal and vegetable fats that can be used to replace butter in a limited way, but no good will come by permitting the sale of colored oleomargarin freely. Some months ago, the women who preside over my household thought that economy might be secured by using oleomargarin in place of lard, but soon found their mistake. Commercial oleomargarin contains considerably more water than does lard, and apart from the economic loss, makes a good deal of trouble by its sputtering when heated. Nevertheless, if housewives and those they serve could rid themselves of the idea that butter ought to be yellow to be wholesome, a limited use could be made of oleomargarin even at the table; but I do not think it can wholly replace true butter as an application to bread. Even in cooking, it is a question if some other fats are not as wholesome and cheaper.

Henry Leffmann, M.D., Philadelphia.

OPEN SAFETY PIN IN AN INFANT'S STOMACH

To the Editor:—The report of an open safety pin in an infant's stomach in The Journal, Dec. 22, 1917, might lead to the impression that an operation is always necessary in such cases. I therefore report the case of an 8 months old baby who swallowed a 1½ inch open safety pin, November 21, about 2 p. m., and later passed it. Roentgenograms taken at the request of the attending physician, Dr. Corliss Keller of Hamilton, Ohio, showed the pin to be in the stomach. Thirty-six hours later the pin was in the same position, and as the separation of the open ends of the pin, as shown in the roentgenogram, seemed to be considerably greater than the diameter of an infant's pylorus, I advised bringing the child to a hospital for operation. Several more pictures were made at the hospital, and at the end of fifty-two hours the operating room was ordered to be made ready. A final picture, however, showed that the pin had apparently passed from the stomach. Operation was then advised against, and in the following thirty-six hours the pin was watched by means of the fluoroscope as it traveled through the intestinal tract, and it was passed at the end of ninety-six hours. Only during the first twenty-four hours did the child show any clinical symptoms. The pin was open at least three fourths of an inch; but as the blunt end evidently engaged the pylorus, the probabilities are that the pyloric sphincter closed the pin sufficiently to allow it to pass. In the majority of instances one can count on the passage of a foreign body through the intestine if it has been able to pass through the pylorus.

D. W. Palmer, M.D., Cincinnati.

AN UNUSUAL COMPLICATION OF TYPHOID FEVER

To the Editor:—The following case seemed to be of sufficient interest to report:

Aug. 10, 1917, a 12 year old boy was brought to St. Joseph's Hospital with typhoid fever. Relatives stated that he had seemed ill for the previous ten days. Sixteen days after entering the hospital, the patient rather abruptly lost the power of speech, although he was able to answer questions by signs. When spoken to he usually began to weep. After ten days the aphasia gradually disappeared, and in two weeks speech was normal. At this time the patient's mother and nurse both noticed that he used his right hand for every purpose, whereas before his illness he had been left handed to an unusual degree. From this time on, convalescence was uneventful. A letter, dated Dec. 26, 1917, reports that to all appearances the boy is right handed, and is now able to use both hands equally well.

Roy E. Thomas, M.D., Phoenix, Ariz.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM

To the Editor:—1. For about how many years has the Credé method of protecting the eyes of children at birth been generally observed?

2. At first was there opposition by some physicians, or by others?

3. Are there states in the Union which have passed laws making this matter obligatory?

H. C., M.D., Colorado.

Answer.—1. The Credé method of employing a 2 per cent. solution of silver nitrate in the prophylaxis of ophthalmia neonatorum was announced about 1880, and its use has been of gradual growth since.

2. There has been opposition to its use and neglect on the part of physicians and midwives, even where it has been made compulsory by law. Objection has been raised because sometimes the 2 per cent. solution causes slight irritation, and in a few instances a more or less persistent redness of the conjunctiva. Some advocate the use of a 1 per cent. solution, and in some states this is the required strength.

3. According to Allport, the following states up to 1916 had made prophylaxis compulsory: Michigan, Idaho, Wisconsin, Rhode Island, North Dakota, Ohio, Tennessee, North Carolina, Nebraska, Illinois, Indiana and Louisiana; the following furnish the prophylactic free: New Jersey, Massachusetts, Utah, Vermont, Wisconsin, Rhode Island, Kentucky, Louisiana, Ohio, California, Illinois, District of Columbia, Kansas, New York and Washington. Each year adds to the states making prophylaxis compulsory.

Many other states have other special legislation concerning ophthalmia neonatorum.

The following may be consulted:

Allport, Frank: State Legislation Concerning Ophthalmia Neonatorum, Paper 2, Ophthalmology, January, 1916, p. 276.

Credé: Prevention of Ocular Inflammation in the New-Born, 1884.

Lewis, F. Park: Ophthalmia Neonatorum, Conservation of Vision Series, Pamphlet XI, American Medical Association.

INCOMPATIBILITY OF QUININ AND ASPIRIN

To the Editor:—I have been in the habit of writing the following prescription for colds:

Aspirin
Quinin sulphate
Dover's powder āā q. s. gr. 5

A drug company of my town gave to a firm of manufacturing pharmacists an order for capsules containing the foregoing drugs, and the latter did not want to fill the order, unless, as set forth in a letter, the drug company was "willing to assume all responsibility for any untoward effect that might result from the administration of a combination of this kind." The reason given for hesitation to execute the order was:

"Acetyl salicylic acid and quinin sulphate are incompatible, and of late medical journals have contained numerous cases where the administration of combinations of this nature have produced very bad effects. While we have not made any special investigation along this line, it seems that in the decomposition of acetyl salicylic acid in connection with the quinin, some poisonous substance, probably quinotoxin, is formed."

Can you give me any information along this line? My experience *with this combination* has been very satisfactory, but if it is incompatible I want to discontinue the use of it.

J. H. M., Idaho.

Answer.—In a discussion of the incompatibility of quinin with acetylsalicylic acid and other organic acids (Queries and Minor Notes, Dec. 18, 1915, p. 2187), The Journal said:

> By long-continued heating with glacial acetic acid or by fusion of the alkaloid salts, some of the cinchona alkaloids may be converted into isomeric products which possess extremely poisonous properties. Experiments have also shown that by acting as catalyzers, slightly dissociated acids, such as acetylsalicylic (aspirin), citric, malic, acetic or tartaric acid, under the influence of heat, may convert quinin into its poisonous isomer, quinotoxin, and cinchonin into cinchotoxin. At the temperature of from 98 to 102 C. (208.4 to 215.6 F.) the conversion is practically quantitative; at 37 C. (98.6 F.—normal body temperature) the reaction goes on much more slowly, amounting to about 2 per cent. in forty-eight hours. The danger of poisoning through conversion of quinin into quinotoxin in the body cannot be great, but it is well to *keep the possibility in mind.* The formation of a dangerous amount of the poisonous product would probably be greatly favored if the mixture—quinin and aspirin, for instance—had been made up for some time. Suspensions of the alkaloid in flavored syrups, with organic acids, etc., might be regarded with suspicion; likewise elixirs, such as iron, quinin and strychnin, which usually contain citrates or tartrates. The foregoing applies especially to the alkaloid and to such salts as quinin tannate.

In The Journal, Oct. 20, 1917, p. 1375, a physician calls attention to the tendency of capsules containing quinin and aspirin to get soft, showing a physical and probably a chemical change.

CALCIUM IODID IN TUBERCULOSIS—VENCALXODINE

To the Editor:—Would you kindly furnish me such information as you have as to the value of calcium iodid intravenously in tuberculosis? My attention has been directed to the preparation called Vencalxodine *put out by the Intravenous Products Company of Denver. What is the* standing of this firm?

Walter E. Vest, M.D., Huntington, W. Va.

Answer.—We know of no work which indicates that the intravenous administration of calcium iodid in tuberculosis is of value. It has not been demonstrated that tuberculosis is associated with a deficiency of calcium (The Journal, June 23, 1917, p. 1915); on the other hand, the experiments indicate that the administration of calcium does not change the calcium content of the blood (The Journal, Feb. 2, 1918, p. 313). Furthermore, there is no evidence to warrant the intravenous administration of iodids.

The Council on Pharmacy and Chemistry has not examined Vencalxodine; it has, however, examined and published reports on the following preparations of the Intravenous Products Company: Venarsen (The Journal, May 22, 1915, p. 1780); Venodine (The Journal, June 26, 1915, p. 2155), and Venosal (The Journal, Jan. 5, 1918, p. 48).

Work of Infantile Paralysis Committee.—The citizens' health committee, appointed by the mayor of Newark, which began its work in August, 1916, in the after-care of patients the victims of infantile paralysis, has made its report to the Board of City Commissioners. The committee was supplied with funds by public subscription to the amount of about $22,000, of which $18,500 was spent, leaving a balance unexpended of a little over $3,500. There came to the notice of the committee 1,152 cases, all of which were investigated, and of this number, 956 patients were placed under the care of trained nurses. At present there are 286 patients under the committee's care, and arrangements have been made to continue their treatment until the fund is exhausted. Of the total number of cases, 781 were discharged, fifty-seven patients died and twenty-eight left the city when their families moved. Those discharged are classified as follows: recovered, 224; apparently recovered, 79; improved, 100; to family physician, 232; to hospitals, 30; to other care, 15; moved away, 72; refused care, 29. Of the fifty-seven who died, not all were under the committee's care, and sixteen of the deaths of those under its care were from causes other than infantile paralysis. Braces to the number of 437 were purchased up to Nov. 1, 1917.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.

California: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Hampshire June Examination

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, June 25-26, 1917. The examination covered 12 subjects and included 60 questions. An average of 75 per cent. was required to pass. Six candidates were examined, of whom 5, including 1 osteopath, passed, and 1, an osteopath, failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1914)	75.5
University of Maryland	(1916)	79
Boston University	(1917)	81.6
University and Bellevue Hospital Medical College	(1910)	84.7

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Kentucky School of Medicine of Louisville	(1905)	Vermont
Boston University	(1900)	R. Island
Tufts College Medical School	(1915, 2)	Mass.
University of Vermont (1908) Vermont;	(1910)	Mass.
	(1913)	New Jersey

Alaska July Examination

Dr. L. P. Dawes, secretary of the Alaska Board of Medical Examiners, reports the written examination held at Juneau, July 4-6, 1917. The examination covered 9 subjects and included 66 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)	84
University of Texas	(1899)	87

Wyoming March, June and October Examinations

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examinations held at Laramie in March, June and October, 1917. The examinations covered 10 subjects and included 100 questions. Fifteen candidates were examined, including 2 osteopaths, all of whom passed. An average of 75 per cent. was required to pass. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado	(1916)	83
Chicago Coll. of Med. and Surgery (1916) 80.2;	(1917)	87
Jenner Medical College	(1916)	89
Rush Medical College	(1903)	83.4
Ensworth Medical College	(1905)	82
Maryland Medical College	(1912)	86
John A. Creighton Med. Coll. (1914) 87.5; (1915) 85;	(1917)	83
Lincoln Medical College	(1917)	87
University of Nebraska	(1916)	85
Trinity Medical College	(1901)	83

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine	(1899)	Illinois
Bennett College of Eclectic Med. and Surg.	(1908)	Illinois
Rush Medical College	(1900)	Illinois
Drake University	(1909)	Illinois
State University of Iowa College of Medicine	(1911)	Iowa
Kansas Medical College	(1897)	Kansas
University of Kansas	(1907)	Kansas
Baltimore Medical College	(1913)	W. Virginia
Ohio State University College of Medicine	(1917)	Ohio
University of Oklahoma	(1915)	Utah
Western Pennsylvania Medical College	(1895)	Penna.
Medical College of the State of South Carolina	(1899)	Utah
Memphis Hospital Medical College	(1901)	Tennessee
Wisconsin College of Physicians and Surgeons	(1912)	Wisconsin

Utah October Examination

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 1-2, 1917. The examination covered 18 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Total No. Licensed
University of Colorado (1916) 1;	(1917)	1
Jefferson Medical College	(1917)	1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1913)	Idaho

Book Notices

Dietetics for Nurses. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth Edition. Cloth. Price, $1.50 net. Pp. 467, with 8 illustrations. Philadelphia: W. B. Saunders Company, 1917.

In this edition the authors have brought the subject of dietetics for nurses up to date. This subject has been receiving much more attention in recent years than it formerly did, and a considerable number of advances have been made. This applies particularly to the work on diabetes, and the section on this subject has been largely rewritten, and a number of new diet lists added. The book covers the subject in great detail, and will be found exceedingly valuable, not only for nurses, but also for physicians who wish a shorter work on the subject than the larger book by these authors, entitled "Diet in Health and Disease." An especially excellent section of the book is that on diet in ulcer of the stomach. The authors describe the treatment followed by Boas, the Lenhartz diet and finally the Sippy diet, which they believe is likely to replace all other methods of treatment.

Impotence and Sterility with Aberrations of the Sexual Function and Sex Gland Implantation. By G. Frank Lydston, M.D., D.C.I. Cloth. Price, $4. Pp. 333, with illustrations. Chicago: Riverton Press, 1917.

In this work the author discusses the disorders of sexual function, including the various researches that he himself has conducted on this subject. The first two thirds of the book cover the phases and contain a discussion of these disorders, including numerous cases and excellent recommendations as to treatment. The final third of the book is devoted to a report of the author's researches on sex gland implantation, much of which has appeared in recent periodical literature. As a result of his work, the author concludes that successful total or partial implantation of human sex glands in both male and female is practicable, and that by this method various disease conditions may be greatly benefited, as successful implantation supplies the internal secretions of these organs which are "stimulant, nutrient, tonic and reconstructive, and should increase resistance to disease." He points out, finally, that as matters now stand, only persons in affluent circumstances, and very few even of these, can avail themselves of this procedure.

Manual of Laboratory Diagnosis. By Stella M. Gardner, M.D., and Mary C. Lincoln, Ph.B., M.D. Cloth. Price, $1.25. Pp. 133. Chicago: Chicago Medical Book Company, 1917.

This is an extremely brief outline of common diagnostic methods. It is incomplete, without illustration, and suffers by comparison with other works on laboratory diagnosis.

Medicolegal

Liability for Damages from Criminal Operation

(Lembo vs. Donnell (Me.), 101 Atl. R. 469)

The Supreme Judicial Court of Maine, in overruling a motion by the defendant for a new trial after the jury returned a verdict of $881.58 for the plaintiff, says that it was alleged that the defendant performed an illegal opertation on the plaintiff's wife to produce a miscarriage, and thereafter negligently and unskilfully treated her, whereby the plaintiff was put to large expense for nursing, medicine and medical attendance for her, and was deprived of her companionship and services for a long space of time. The court thinks the evidence was abundantly sufficient to justify the jury in finding that both of the allegations on which the action was based were established. Nor did the defendant succeed in making it appear to the court that the damages awarded were excessive. The plaintiff's wife became infected with blood poisoning as a result of the criminal operation on her. The defendant attended her for about four weeks following the operation. Under his treatment she became desperately ill, and as soon as another physician was called she was removed to a hospital, where her case was diagnosed as almost hopeless. She remained in the hospital seven weeks, during which time ten operations were performed to remove pus from different parts of her body. She had recovered only in part at the time of the trial, about six months after she left the hospital. The evidence showed that the plaintiff was put to large expenses for nursing, medicine and medical and surgical services in an effort to save his wife's life and to restore her to health as much as possible. The jury may well have found from the evidence that his actual disbursements and liabilities necessarily incurred on that account amounted to substantially $600. In view of that fact, and also that the plaintiff was deprived of the services of his wife for a long soace of time, and that he suffered great anxiety and distress of mind on account of her serious illness, an awaard of $881.58 in his favor could not be regarded as excessive.

Property Rights and Duties of a Public Charitable Hospital

(O'Brien vs. Physicians' Hospital Association (Ohio), 116 N. E. R. 975)

The Supreme Court of Ohio affirms a judgment permanently enjoining the county treasurer from demanding or collecting certain taxes on the property of the hospital association. The court says that the property was purchased with trust funds donated for the purposes of a public charity hospital, and is impressed with that trust. It cannot be withdrawn from the uses of this trust at the will of the trustee, or of any or all of the donors of the fund. The donors of this fund have parted with all private ownership in the fund itself. They have no property interest in the fund, or the real estate purchased with the fund, and no rights whatever in relation thereto, except to compel the administration of the trust in accordance with the terms of the gift. The title to this property is in the corporation only as a trustee for the purposes of this trust, and it cannot divert it to any use other than public charity. Every dollar received by this association from patients who are able to pay, or from other sources, immediately becomes impressed with the same trust, and cannot be diverted to private profit. This corporation can be compelled by a court of competent jurisdiction to administer this trust according to the intent and purpose of the donors of the fund; or, on its failure to do so, it can be removed, and another trustee appointed who will administer it. It is true that this corporation is not compelled to use this property for hospital purposes. It may find the property inadequate for its needs, and purchase other property for the purposes, or it may find it unnecessary to occupy the entire property for a hospital, and may sell it, or rent the whole or a part, as may in its judgment be for the best interest of the trust; but the funds obtained from sale or rentals would still be trust funds that could not be devoted to any purpose other than the purposes of the trust, although the property itself would no longer be used exclusively for public charity. If, however, it uses this property exclusively for hospital purposes, then such hospital must be a public charitable hospital, and as such its doors must open to those who are unable to pay, the same as they open to those who have means to contribute further sums to this public charity commensurate in a degree at least with the hospital accommodations they receive. The fact that it may receive pay patients, without losing its character as a public charitable hospital, does not authorize it to receive pay patients in such numbers as to exhaust its accommodations, so that it cannot receive and extend hospital service to the usual and ordinary number of indigent patients applying for admission under proper rules and regulations of the board of trustees—excepting, of course, the cases it has no facilities for handling. The first concern of a charitable hospital must be for those who are unable to pay. If, after taking care of these, it still has further accommodations, there can be no objection to making use of these for pay patients in order to increase the fund which may be at its disposal for the benefit of the poor. It may be, however, that it cannot always nicely measure these demands. It is sufficient if it conforms its conduct along the lines of its experience as to the ordinary and usual demand made on it by charity patients, provided, always, that it act in good faith and in accord with the purposes of its organization. If the hospital association fails in these particulars, the remedy is not by placing the property on the tax duplicate, but by action to enforce a proper administration of the trust, or the revocation of its charter for abuse of its corporate franchise, and the appointment of another trustee to administer the trust.

Optometry Law Unconstitutional

(People vs. Griffith (Ill.), 117 N. E. R. 195)

The Supreme Court of Illinois, in reversing a judgment of conviction of the defendant of practicing optometry without a license, holds that the act of 1915 to regulate the practice of optometry in the state of Illinois is unconstitutional. The court says that Section 1 of the act gives a definition of optometry as including every means for the measurement of the powers of vision and the adaptation of lenses for the aid thereof, other than the use of drugs, medicine or surgery. A woman asked to have her eyes tested for reading, and the defendant put on her head a try frame, in which he could place different lenses to see whether she could read letters which he placed at a distance, and, when he found lenses that suited her, she contracted to pay him $12.50 for glasses, paid him a dollar, and took a receipt. The trial court found, and counsel insisted, that what the defendant did consisted of the practice of optometry under the foregoing definition, which is broad enough to include every measurement of the power of vision and fitting glasses to aid the vision. Assuming that what the defendant did was the practice of optometry, the question was whether an act requiring a license for doing those things is valid. What the defendant did was to try different lenses, and when the customer said she could read the letters at a distance she practically decided what glasses would suit her and contracted for them. If changing lenses until the customer was suited, or placing letters at a distance to be read, is measurement of the power of vision and the adaptaion of lenses, it is no more than the measurements made by any person who undertakes to fit a person when the person himself decides what answers the purpose. Such measurements, if they are so called, have no relation to the public health, comfort, safety or welfare, such as to require a course of previous study and an examination and payment of a license fee. This court does not say that it is beyond the power of the General Assembly to enact a statute requiring a previous course of study and an examination of applicants to practice the calling or profession of examining the eye to ascertain if there are defects which can be remedied by the use of lenses, the determination of the accommodation and refractive states of the eye, the range and power of vision and abnormal conditions, and the adaptation of lenses to correct defects, or to require a license to practice such calling or profession; but the act now in que[illegible] construed by the parties and counsel, is not within [illegible] o[illegible] powers intrusted to the C[illegible] Assembly.

Construction of Provision as to Compensation of Physicians

(Holland vs. Zeuner (Mass.), 117 N. E. R. 1)

The Supreme Judicial Court of Massachusetts says that this was an action whereby the plaintiff sought to recover for professional services rendered by him as a physician to the defendant, who received injuries arising out of and in the course of his employment by a subscriber under the workmen's compensation act of that state. The defendant's injury was reported to the industrial accident board by his employer. He was referred to an impartial physician, on whose report an agreement for compensation was made and allowed. The plaintiff attended the defendant from the time of the injury until recovery. He was paid by the insurer for his services rendered during the first two weeks after the injury. The remainder of his bill was involved here. The defendant contended that there could be no recovery because the bill had not been approved by the industrial accident board. The court affirms an order dismissing report.

It is provided by the workmen's compensation act that:

> "Fees of attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the industrial accident board. If the association and any physician or hospital, or the employee and any attorney, fail to reach an agreement as to the amount to be paid for such services, either party may notify the board, which may thereupon call for the formation of a committee of arbitration," etc.

The court thinks it is manifest from this section as a whole that it does not cover fees for services which are rendered outside the act. The second sentence makes it plain that the fees of the physician which are "under the act" are those for which the insurer must pay. It is only in the case of a disagreement between the insurer and the physician that that board is to be notified and the disagreement settled. The employee is not mentioned at all in this connection. The only disagreement in connection with which he is mentioned is one with his attorney. So far as concerns physicians, this section refers only to the services for which, under Part 2, Section 5, the insurer is liable. It does not apply to arrangements for professional attendance between a physician and an employee for which the employee is liable and the insurer is not, even though relating to an injury for which the insurer may be liable under the act. All of the cases which have arisen in this commonwealth heretofore have had to do with physicians' fees for which the insurer was responsible, and none of them are at all at variance with the conclusions here reached.

As to Showing Contingent Fees of Witnesses

(Missouri, K. & T. Ry. Co. of Texas vs. Hart (Tex.), 196 S. W. R. 960)

The Court of Civil Appeals of Texas, in affirming a judgment for damages for personal injuries in favor of plaintiff Hart, holds that there was no error in excluding as evidence certain testimony offered by the defendant railway company as to the contingent fees in other cases of a physician who was one of the physicians that treated the plaintiff for the injury he claimed he had suffered and who was a witness for him in this case. The court says that the defendant, on its cross-examination of this witness, proved by him that in the nine years preceding the trial he had been a witness for plaintiffs, represented by one of the attorneys for the plaintiff in this case, in about 110 damage suits against railway companies, and had never been a witness for a defendant in such a suit. The defendant complained that the trial court refused to permit it to prove further by the witness that he had been paid contingent fees for testifying in a number of the suits, and then had a suit pending in the district court to recover $700 for testifying in one of them, in which he alleged in his petition that it was on his testimony that the plaintiff in that suit had recovered a large judgment against the defendant. It would have been permissible for the defendant to show, *if it could*, that a fee other than the statutory one was to be paid the witness if the plaintiff recovered a judgment against it in this case, and doubtless it would have been permitted to make such proof had it offered to do so. But proof that the witness had received, or claimed a right to receive, contingent fees for testifying in other cases would not of itself tend to show interest on his part in the result of this suit, or bias against the defendant.

Society Proceedings

ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

FOURTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 4, 1918

Dr. Horace D. Arnold, Boston, in the Chair

Council Problems and Policy

Dr. Horace D. Arnold, Boston: The Council on Medical Education has until now had but one chairman, Dr. Arthur Dean Bevan, since it was established in 1904. The remarkable success in raising the standards of medical education in so short a time has been due chiefly to Dr. Bevan's broad, progressive conceptions, and to his rare tact and good judgment.

The Council has voted to submit to the next meeting of the House of Delegates for approval a slightly modified basis for classifying medical colleges, and to ask authority to proceed with a general reclassification on this new basis. It has become evident that after the war there will be a great opportunity for graduate instruction for the medical schools of this country, not only for our own returning medical offices, but also for physicians from the nations now our allies, who will look to this country for the best organized opportunities for such study. Many opportunities for advanced medical study and work already exist in this country, but they are little known and poorly organized. The work of a committee, appointed a year ago to consider higher degrees in medicine, has been extended by the Council to include the collection and publication of data on graduate medical instruction.

The standardization of hospitals and the development of better conditions for intern service urgently demand the attention of the Council, which will push this work and cooperate with other agencies now studying these problems.

In regard to the various medical cults, we should emphasize the fact that the success of any treatment used to relieve those who are ill depends on a proper training of those who are to administer that treatment.

The importance of the maintenance of the present high standards of medical education should be emphasized. The opportunity afforded by the examination of physicians for Army service, together with the experience already gained in observing the deficiencies of many of the physicians thus selected in the various camps, is the best possible proof that the requirements are not too high, and the best possible reason for maintaining these standards.

[See article by Dr. Arnold, this issue, p. 451.]

Recent Improvements and Further Needs in Medical Education

Dr. N. P. Colwell, Chicago: During the last fifteen years, the improvement of greatest importance has been the increase in the preliminary qualifications required of medical students. Without a training in physics, chemistry and biology, students would be handicapped, however well equipped the medical school might be with teachers and laboratories. The higher admission requirements were adopted voluntarily by the majority of medical schools, and this increase in many instances has been supported by the local state licensing boards. This action by state boards induced other medical colleges, which would not do so voluntarily, to adopt the higher standard. It is usually those interested in medical schools of the latter type that are ready to seize on any pretext to urge a retrogression in entrance requirements. They are now urging the country's "dire need of doctors" as a reason for returning to lower entrance standards.

In recent years, the remarkable increase in the demand for medical graduates as hospital interns, health officers, medical teachers, and the like, has been due to the greatly improved qualifications of those now graduating from our medical schools. This demand did not exist formerly because the graduates then turned out were not qualified educationally or professionally to fill those positions satisfactorily. The present demand, therefore, does not call for lower educational standards, but for a continuation of the entrance requirements and improved teaching methods now enforced by the majority of medical schools. Once the war is over, the better colleges will easily supply all demands. This is evidenced by the fact that, from the better medical schools, the number of graduates has increased steadily for the last five years, while the number of those graduating from the lower grade colleges has steadily decreased.

Another claim is that higher requirements are responsible for the development and extension of drugless cults. But osteopathy had reached its acme before the present campaign for higher medical education began, and the large financial returns from the teaching of osteopathy doubtless led to the "discovery" of the later cults, which, in fact, are mostly offshoots of osteopathy. The increased standards of medical education will eventually solve the medical cult problem. Heretofore, some medical colleges were as bad as some of the drugless cult institutions, and many who graduated from low grade medical colleges had less real culture than some of the cult practitioners. Under a continuance of the higher standards of medical education, however, the line of demarcation between physicians and cult healers will broaden into a zone so wide that any one can distinguish between them.

The problem of medical cults is slowly but surely being solved. Their lack of adequate educational requirements is becoming known, and of late most court decisions have been against them. National and state supreme courts have decided that any one who treats human disease by any method is practicing medicine, and this carries the logical conclusion that all those licensed to treat the sick should have a training in the fundamental medical sciences. The United States Supreme Court has shown that osteopaths—and the same argument applies as to other medical sects—should have the same training as is required of physicians. No new sect in medicine should obtain recognition unless its educational requirements are as high as those now required of physicians.

State governments are now trying to avoid a multiplicity of boards and at the same time to guarantee that all who treat the sick shall have an adequate education. In each of several states, practitioners of all schools are licensed by a single medical board. Some states require that all practitioners shall possess the minimum educational qualifications, after which they are licensed as physicians and may practice as they please. The most recent scheme in licensure is that adopted in Illinois, where one board licenses not only physicians and other practitioners of the healing art, but also dentists, pharmacists, midwives and those in other licensed occupations. The most promising feature is that the enforcement of the new law is in the hands of educators of unquestioned ability.

In the recent campaign for the improvement of medical education, a very generous financial support has been provided for medical schools; but it happens that medical schools for negroes have been largely overlooked, although their needs have been proportionally greater than for medical schools generally. Now their income from students' fees has been considerably reduced as a result of the general adoption of higher entrance requirements. As a consequence, medical schools for negroes have not been able to keep pace with improvements in medical education. For about 11 million negroes in the United States, there are only four negro medical schools, one of these being of hopelessly low standing. Generous donations could do much good at the present time if given to medical schools for the colored race.

Problems in the Administration of Entrance Requirements to Medical Schools

Prof. George Gailey Chambers, Director of Admissions of the University of Pennsylvania, Philadelphia: A special committee, appointed by the Council on Medical Education, has prepared a schedule of subjects to be included in the college work required for admission to medical schools: chemistry, twelve semester hours; physics, eight semester hours; biology, eight semester hours, and English composition and literature, six semester hours. A reading knowledge of French or German is strongly urged.

There is no question regarding the wisdom of including English and a foreign language among the requirements, because no acceptable college would be organized so that the premedical student could not conveniently take these subjects. The requirement in English should be doubled as soon as the medical schools can do so without unduly decreasing the number of students.

The methods of teaching the sciences should be such as to arouse a desire for scientific investigation and to create an analytic attitude of mind. These are extremely important for the medical student and the practicing physician.

The required subjects constitute a little more than half of the total amount of college work required, and admission officers should consider that any applicant who does not meet those minimum requirements is not entitled to take up the study of medicine.

The plan of allowing conditions in preliminary branches to be removed a year or more after medical work has begun is not justified. The quality of his first year medical work will have been lowered because of the deficiency in his premedical training.

One of the big problems in the administration of entrance requirements is to determine which colleges are organized and equipped to give premedical college work in a satisfactory manner. There is need of some nation-wide agency to determine college standards, to examine the various colleges, and to publish its findings. Then admisson officers and committees could know whether or not the credentials from a particular college should be accepted. The North Central and Southern Associations of Colleges and Secondary Schools have established permanent commissions to pass on the standing of institutions.

DISCUSSION

Dr. John M. Dodson, Chicago: Scientific subjects are as truly cultural in their power to develop the mind as are the humanities; but since we need both breadth of information and breadth of culture, humanities should have a large place in our premedical curriculum. The activities of the future physician must be largely in the line of preventive medicine. Recent advances have given us a tremendous power to prevent disease, but relatively little advance in curing disease. Therefore we need, first, education of the community, and second, an expression of educated public opinion in legislative enactments. A cultivated medical man, able to express himself forcefully, is a more effective leader of public opinion in his community than one who intensifies his training along special lines. In other countries, medical men have had a large part in framing legislation; in our country, relatively little. Some medical men in state legislatures and in Congress are men who have dabbled in politics and not men of high standing in the medical profession. For this reason, the medical man of the future needs to be broadly educated. Of late years, our average students have gone backward in their ability to express themselves in good English. A man's ability to express himself in English, either in speaking or in writing, is largely a question of environment. Instead of requiring a certain amount of English, therefore, there should be a specific test as to whether the student can write English properly.

President Robert E. Vinson, Austin, Texas: We should enlarge our premedical requirements if possible without lengthening the time, by utilizing summer schools now being carried on in most universities. There should be many studies included that will broaden the student's culture and also enlarge his special training.

President William O. Thompson, Columbus, Ohio: Culture does not come in youth but in middle life or later. Those managing our grammar and high schools need the support of intelligent professional men to help uphold the best things in education. In the standardization processes there is the danger of insisting on area and quantity rather than quality.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Ophthalmology, New Rochelle, N. Y.

January, 1918, **47**, No. 1

1 Ocular Changes in Acne Rosacea. Case of Rosacea Ocularis Complicated with Fascicular Keratitis. M. U. Troncoso, New York.—p. 1.
2 Production of Cataract. W. E. Burge, Urbana, Ill.—p. 12.
3 Salvarsan and Other Remedies in Ophthalmic Practice. F. Fergus, Glasgow.—p. 29.
4 Five Years' Experience with Iridotasis. D. Harrower, Worcester, Mass.—p. 37.
5 Late Infection with Enucleation Following an Operation of Iridotasis for Chronic Glaucoma. D. Roy, Atlanta, Ga.—p. 42.
6 Tension in Normal Eyes Before and After Tonsillectomy. A. M. Carr, Chicago.—p. 46.
7 Asteroid Hyalitis. T. B. Holloway, Philadelphia.—p. 50.
8 Leukemic Manifestations in Eye. M. Cohen, New York.—p. 61.
9 Penetrating Injury Limited to Eyeball Followed by Acute Tetanus. R. Sattler, Cincinnati.—p. 64.
10 Case of Unilateral Proptosis; Exploratory Operation. Tentative Diagnosis of Ethmoidal Osteoma. R. Sattler, Cincinnati.—p. 68.
11 Sarcoma of Choroid with Secondary Changes. E. Jackson and W. C. Finnoff, Denver.—p. 72.
12 Tumor of Frontal Lobe of Brain with Ocular Symptom. Necropsy. A. Knapp, New York.—p. 83.

Boston Medical and Surgical Journal

Jan. 24, 1918, **178**, No. 4

13 Research Problems in Tuberculosis. E. R. Baldwin, Saranac Lake, N. Y.—p. 105.
14 Carrel-Dakin Method of Treating Septic Wounds; Its Application to Civil Surgery. G. A. Moore, Brockton.—p. 109.
15 Surgery of Biliary Tract. J. E. Briggs, Boston.—p. 116.
16 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 120.
17 *Paralysis Agitans and Myopathic Dystrophy Occurring in Uncle and Nephew, with Evidences of Internal Glandular Dyscrasia in Latter. M. Osnato, Boston.—p. 123.

17. **Paralysis Agitans and Myopathic Dystrophy.**—There are two very interesting points in the family history in both of Osnato's cases. In the case of the children of the uncle, it is noteworthy that all of them were very early affected by defective eyesight. The significance of this is not clear. The patient's mother and his brothers and sisters were subject to paroxysmal headaches lasting from three to four days, being periodical in character, occurring once each month. There is a bitemporal pallor in the fundus of this patient to explain the headaches on the grounds of pressure from an enlarged pituitary or pineal gland, most likely pituitary. Whether a suspicion is justifiable in the mother and in the other members of the family suffering from these headaches that either the epiphysis or the hypophysis was responsible for the headaches is a question. The patient continues to have paroxysmal periodical headaches, but the other relatives no longer suffer from them. The roentgenographic examination made in the case of the uncle shows nothing. The eye examination in this patient also discloses nothing. Tests for sugar tolerance in the younger patient have been repeatedly made and show a very high degree of sugar tolerance.

Canadian Medical Association Journal, Toronto

January, 1918, **8**, No. 1

18 Occupation in Treatment of Pulmonary Tuberculosis. J. R. Byers.—p. 1.
19 Diagnosis of Renal Tuberculosis from Department of Urology, Royal Victoria Hospital, Montreal. D. W. MacKenzie, Montreal.—p. 8.
20 Effects of Gassing as Seen at Casualty Clearing Station. G. B. Peat.—p. 17.
21 Modification in Strength of Bordet-Wassermann Test During Treatment of Syphilis. H. K. Detweiler, Toronto.—p. 25.
22 Cases of Empyema Cavities. D. E. Robertson, Toronto.—p. 34.
23 Home Treatment of Tuberculosis. D. H. Bernstein, Montreal.—p. 38.
24 Purpuric Measles. L. M. Lindsay, Montreal.—p. 49.

Colorado Medicine, Denver

November, 1917, **14**, No. 11

25 What Constitutes a Diagnosis of Tuberculosis Sufficient for Rejection for Army? H. Sewall, Denver.—p. 286.
26 Intravenous Medication. M. R. Fox, Sterling.—p. 291.

Indiana State Medical Association, Fort Wayne

January, 1918, **11**, No. 1

27 Activities of the Indiana State Medical Association. J. H. Oliver, Indianapolis.—p. 1.
28 Anesthesia as a Specialty. E. M. Hoover, Elkhart.—p. 4.
29 Causes of Postoperative Nephritis. K. R. Ruddell, Indianapolis.—p. 6.
30 Backache in Women. J. A. Work, Jr., Elkhart.—p. 9.
31 Surgery of Thyroid. W. D. Gatch, Indianapolis.—p. 13.

Iowa State Medical Society Journal, Des Moines

January, 1918, **8**, No. 1

32 Laboratory Diagnosis of Atypical Cases of Communicable Diseases. H. Albert, Iowa City.—p. 1.
33 Diagnosis and Prognosis of More Common Valvular Affections of Heart. W. L. Bierring, Des Moines.—p. 4.
34 What Is Not Rheumatism? W. H. Rendleman, Davenport.—p. 10.
35 Prenatal, Natal and Postnatal Lesions of Cerebrum with Resultant Conditions. E. M. Williams, Sioux City.—p. 16.
36 Tuberculosis of Larynx. R. M. Lapsley, Keokuk.—p. 20.
37 War Work of American Medical Women. E. M. Mosher, New York.—p. 22.

Journal of Infectious Diseases, Chicago

January, 1918, **22**, No. 1

38 *Studies on Blood Proteins. Albumin-Globulin Ratio in Antitoxic Immunity. K. F. Meyer, S. H. Hurwitz and L. Taussig, San Francisco.—p. 1.
39 *Effects of Roentgen Ray on Antibody Production. L. Hektoen, Chicago.—p. 28.
40 Experimental Trypanosomiasis: T. Equiperdum Infection in Dog. E. B. Krumbhaar, Philadelphia.—p. 34.
41 Complement Fixation in Experimental Trypanosomiasis. A. C. Woods and H. H. Morris, Philadelphia.—p. 43.
42 Stability of Erythrocytes of Ox, Pig and Sheep. M. W. Lyon, Jr., Washington, D. C.—p. 49.
43 *Use of Monilia Vaccine in Treatment of Sprue. C. Michel, Porto Rico.—p. 53.
44 *Active Immunity to Systemic Plague Infection. F. Eberson, Harbin, Manchuria.—p. 62.
45 Streptococcus in Acute Epidemic Respiratory Infection of Horses. G. Mathers, Chicago.—p. 74.
46 *Antipollen Serum for Standardization of Pollen Antigen. R. O. Clock, New York.—p. 80.
47 Allergic Phenomena Following Intraportal Injections. F. H. Falls, Chicago.—p. 83.
48 *Microscopic Demonstration of Cocci in Central Nervous System in Epidemic Poliomyelitis. L. Hektoen, G. Mathers and L. Jackson, Chicago.—p. 89.
49 *Inhibitive Effect of Ox-Bile on B. Typhosus. E. E. Ecker, Chicago.—p. 95.

38. **Albumin-Globulin Ratio in Antitoxic Immunity.**—Meyer and his associates found that the percentage of serum globulins increases markedly during the course of immunization with diphtheria, tetanus, and botulism toxin. In the case of botulism toxin, however, there is first an initial rise in the albumin fraction. No constant relationship is demonstrable between the percentage increase in the serum globulin and the antitoxic potency of the serum. The rise in globulins may be one manifestation of an upset in the delicate protein balance of the blood, resulting from the disturbed metabolism following the toxin inoculations.

39. **Roentgen Ray and Antibody Production.**—To test the effect of the ray on antibody-production after it is well under way, that is, a few days after the introduction of the antigen, it proved advisable to use animals that would stand repeated bleedings better than the rat. The purpose now is to present briefly the results of experiments of this and like nature made by Hektoen on the dog and the rabbit. He found that exposure of dogs and rabbits to the roentgen ray at about the same time as antigen is introduced may restrain in high degree, and under some conditions completely, the production of antibodies as measured by the antibody content of the serum. The results correspond fully to those previously obtained from experiments on the white rat. When antibody-production is at or near its height, exposure to the roentgen ray appears to have but little if any effect on the antibodies in the blood, and at this time dogs appear to have an increased resistance to the effects of the ray just as rabbits in the period of active production of antibodies have an increased resistance to effects of benzene. Whether there is any relationship between this apparent resistance to the effects of roentgen rays and the reported beneficial effect of the rays in the later stages of tuberculosis in guinea-pigs remains to

be determined. The results obtained from these observations harmonize with the view that antibodies are produced in the spleen, lymphatic tissues, and marrow, as these structures suffer most directly from the action of the roentgen ray; they indicate also that one reason why the lymphocyte appears to be an important agent of defense in tuberculosis and other conditions may be its power to form antibodies and that the rapid development of tuberculosis in roentgen-rayed guinea-pigs may depend, at least in part, on interference with antibody-production.

43. **Monilia Vaccine in Sprue.**—Of 81 cases reported on by Michel 62 patients have completed the treatment. All cases were diagnosed by Ashford and monilia psilosis was isolated from the feces. In all these cases the complement fixation test was positive. The diet was regulated so as to fit each individual case. The only medication given was to stimulate digestion. Sprue being confused with other diseases and being often complicated, a careful positive diagnosis was made in each case. Cases of sprue without complications responded most readily to the treatment. Americans responded very quickly to the treatment and required a shorter time than Porto Ricans. Of 62 patients treated, 49 patients were discharged cured, 12 were improved, and 1 died. The results of the vaccine treatment are very encouraging, and all patients under treatment have shown great improvement. In noting the results of the treatment, the mental attitude of the patients has been considered to ascertain whether the injections and reactions produced a psychic improvement only. In certain cases there was a distinct abatement of sprue symptoms after the third injection and instead of a diarrhea, constipation resulted. The most notable feature was the gain in weight, which was progressive from week to week. There was, in all cases, a great improvement in the general physical condition of the patient, and the disappearance of the *monilia* from the feces. The results of this treatment are very favorable, and it is believed that monilia psilosis vaccine should be tried in other localities where sprue is present.

44. **Active Immunity to Systemic Plague Infection.**—Eberson claims that the treatment of rabbits with proteotoxins obtained with *B. pestis* confers a definite resistance on the part of the animal to systemically introduced plague organisms. There is apparent protection in at least 75 per cent. of the animals treated, taking the entire number of cases into consideration. Below a certain dose of bacteria, the protection conferred is much greater. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, so far as it has been possible to determine in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living virulent plague bacilli. *B. pestis* appears to be the matrix for a specific poisonous substance of the nature of proteotoxin, and capable of inducing a specific resistance to the organism which is used in the manufacture of the toxic element. Observations so far support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

46. **Antipollen Serum for Standardization of Antigen.**—Potent antipollen serum was prepared by Clock by immunizing rabbits intravenously or intraperitoneally with an extract of whole pollen. Eleven injections of an increasing number of units of pollen, ranging from 5,000 to 50,000, produced immune serum of sufficiently high titer for use as positive serum in standardizing pollen antigen. Antipollen serum preserved in 50 per cent. glycerol retained its potency and did not become anticomplementary after two years. Antipollen serum, used for standardizing pollen antigen by the complement fixation method, afforded a reliable guide for determining and measuring the active antigenic power of pollen extract.

48. **Cocci in Nervous System in Poliomyelitis.**—The cord and other parts of the central nervous system in about fifty cases of epidemic poliomyelitis, occurring in different parts of the country, were examined by Hektoen and his associates and found to contain in stained sections, cocci which look quite like the cocci that may be grown in cultures from the brain and cord in poliomyelitis. This result indicates that such cocci occur constantly in the central nervous system in epidemic poliomyelitis, and that their presence here is not explainable as due to accident or contamination.

49. **Inhibitive Effect of Ox-Bile on B. Typhosus.**—The observations recorded by Ecker show that a great number of the viable cells of *B. typhosus* are affected through the use of bile media, and further multiplication prevented. Bile has a distinct inhibitive effect on the growth of typhoid bacilli. This inhibition can be reduced to a certain extent by the addition of glycerol. There is no marked difference between the inhibitory power of bile sterilized by heat and that of bile sterilized by filtration through a Nordmeyer bougie. Bile salts distinctly retard the growth of typhoid bacilli.

Journal of Parasitology, Urbana, Ill.

December, 1917, **4**, No. 2

50 Homologies of Excretory System of Forked-Tailed Cercariae. W. W. Cort, San Francisco.—p. 49.
51 Morphology and Life History of New Trematode Parasite, Lissorchis Fairporti Nov. Gen., et. Nov. Spec. from Buffalo Fish, Ictiobus. T. B. Magath, Chicago.—p. 58.
52 Insect Transmission of Infectious Anemia of Horses. C. W. Howard.—p. 70.
53 Intestinal Worms of Dogs in Philippine Islands. L. D. Wharton, Philippines.—p. 80.
54 Intracellular Development of Gregarine Frenzelina Ampelisca n. sp. N. Nowlin and I. Smith, Topeka, Kan.—p. 83.
55 Animal Parasites of Rats at Madison, Wisconsin. A. M. Moll, Madison, Wis.—p. 91.

Medical Record, New York

Jan. 26, 1918, **93**, No. 4

56 *Streptococcus Oral Sepsis: Complement Fixation Test and Value of Routine Blood Examination. N. B. Potter, A. McNeil and S. Bradbury, New York.—p. 135.
57 Radioactivity in Therapeutics. J. B. Bissell, New York.—p. 12.
58 Diagnosis and Treatment of Obscure Cases of Tuberculosis. O. Paget, Fremantle, West Australia.—p. 144.
59 Gallbladder Disease and Its Surgical Treatment. M. Behrend, Philadelphia.—p. 147.
60 Internal Secretions and Pediatrics. A. Hymanson, New York. p. 150.

56. **Streptococcus Oral Sepsis.**—The authors detail their experiences with a complement fixation test in a series of cases of streptococcus mouth infections. Even with an imperfect antigen the results of a complement fixation test for streptococci in the oral sepsis complicating or causing many forms of chronic invalidism, supports in general the clinical evidence of the etiologic, prophylactic, and therapeutic importance of this organism, and emphasizes the desirability of further attempts along this line to assist diagnosis. In twenty-five cases of pronounced oral sepsis the only suggestive feature exhibited by a routine examination of the blood is a high normal lymphocyte percentage, which, however, is certainly no more striking than in any collection of patients who consult a physician for some minor ailment.

Military Surgeon, Washington, D. C.

January, 1918, **42**, No. 1

61 *Transportation of Wounded. J. Gilmour.—p. 1.
62 Army Venereal Problem. G. R. Callender.—p. 13.
63 Id. R. G. Ebert.—p. 19.
64 Medicomilitary Notes. R. W. Hinds.—p. 25. To be *continued.*
65 Ophthalmology as Specialty Ashore and Afloat. G. B. Trible.—p. 37.
66 Local Anesthesia. C. R. Reynolds.—p. 45.
67 *Flatfoot. G. H. R. Gosman and H. P. Perry.—p. 56.
68 *Auscultation of Pulmonary Apices in Young Men. J. T. King, Jr.—p. 60.

61. **Transportation of Wounded.**—Gilmour describes the method of transportation of wounded used by the Royal Army Medical Corps. The assistant director of medical services makes his arrangements to get the wounded of his division from the firing line to the field ambulance. The deputy director of medical services of the corps removes the wounded from the field ambulances to the casualty clearing station. The director of medical [illegible] at the army headquarters arranges for hospital [illegible] clear the [illegible]ualty-

clearing stations to the general hospitals at the base. The assistant director of medical services of the division must work closely with the other divisional staff officers. He must obtain sufficient personnel to act as stretcher-bearers. He must know which are "up" trenches and which are "down." Trenches cannot be blocked by wounded being carried down when troops and ammunition are being taken up. He must know the routes of the trench tramways and Decauville railways so as to utilize these important methods of transport and so avoid long carries by men. He must arrange for the use of the empty returning trucks, so he must know when ammunition, etc., is being sent up. In the event of an advance, these light railways and trench tramways are pushed on behind the troops; he must therefore know where they are going and arrange his collecting posts at the most suitable sites. If it is possible to use roads, he must know which roads are suitable for motor transport and which for horse-drawn transport. All routes must have proper directing posts or flags at crossings so that the unaccompanied, walking, wounded men may know which way to go. All medical posts must be distinctively marked.

The deputy director of medical services at the corps headquarters arranges for the transportation of wounded from the main dressing station to the casualty clearing station, and also assists by sending extra transport to clear the wounded from the advanced dressing stations to the main dressing station if any strain or congestion is occurring at any point. He also arranges for the evacuation of the lightly wounded from the "walking wounded post" to the casualty clearing station. The site for a "walking wounded post" should be, if possible, close to a main road so that the empty returning transport may be made use of. Empty returning ammunition trucks are usually available after the first few hours. The route to be taken by the motor ambulance cars between the advanced dressing station and the main dressing station and between the main dressing station and the casualty clearing station must be worked out in conjunction with the assistant provost marshal at the corps headquarters. Ambulance cars should never be allowed to run in convoys; single cars are much easier to handle by traffic officers. They can be passed through a body of marching troops without halting the whole column, and they are much speedier when running alone. The evacuation from the casualty clearing station to the base by means of hospital trains is arranged by the director of medical services with the director of railway transport at the army headquarters.

When a man is hit in the trenches the stretcher-bearers go to his assistance. The first field dressing is applied and the man is accompanied or carried to the headquarters of the medical officer in the battalion aid post. This is a dugout in the second or third line of trenches. From there he is taken by the battalion stretcher-bearers to the advanced dressing station, or, if the distance is great, to a collecting post. This part of the journey is made by hand carriage or trench tramways by the battalion stretcher-bearers. From the advanced dressing station or the collecting post the field ambulance takes charge of the wounded man. If his condition is not serious he may be detained till night, when it is possible for motor ambulances to come up and evacuate the wounded. If the condition of the wounded man is so serious that he cannot be detained, he is taken by wheeled stretcher to the nearest point to which an ambulance car can advance without attracting the attention of the enemy and from there to the main dressing station of the field ambulance. This stage of the evacuation is performed by the ambulance cars of the field ambulance. From the main dressing station to the casualty clearing station, the cars of the motor ambulance convoy do the transportation. This evacuation is arranged at fixed hours once or twice a day. The officer in charge of the field ambulance notifies the commander of the motor ambulance convoy how many patients he has requiring transportation, whether they are officers or of other ranks, and how many lying and sitting. The motor ambulance convoy removes infectious cases once a day from the field ambulance to the special infectious hospital. The methods of transport in use on the western front may be classified as follows: (1) by men, (2) by conveyances carried by men, (3) by conveyances wheeled or drawn by men, (4) by conveyances carried by animals, (5) by conveyances drawn by animals, (6) by mechanical transport, (7) by railway transport, (8) by water transport.

67. **Studies in Flatfoot.**—The following conclusions have been reached by Gosman and Perry as the result of the work at Fort Ethan Allen, in the observation and treatment of flatfoot. 1. Subjectively symptomless flatfoot, in civil life, quickly becomes a source of trouble and invariably gives acute symptoms under the burden of intensive military training. 2. Any given case objectively showing a flat arch, even though of the first degree, should be rejected for enlistment, unless all motions of the toes and ankles are free to the extreme degree. 3. The system of recording the degree of flatfoot inaugurated at this post indicates, by comparison, the degree of improvement in motility under muscular exercise properly conducted. 4. The method employed at Fort Ethan Allen since Aug. 1, 1917, in the treatment of flatfoot is the plan best adapted to the needs of men in the army undergoing intensive military training. 5. The nonresistant exercise plan is most effective and shows results well calculated to make its adoption in military practice advisable.

68. **Auscultation of Pulmonary Apices.**—In an examination of over 20,000 men for tuberculosis, King kept notes of adventitious sounds in the upper lobes in the examination of 819 men. In thirty-three cases (4 per cent.), crepitations were heard at or near one or more joints. Most of such sounds emanated from the scapulae, the costosternal and sternoclavicular articulations, and from the joints at the shoulder anteriorly. In twenty-three instances, certain crackles, usually rather loud and explosive, were heard for one or a few respirations at the apices, disappearing promptly during continued breathing. In seventeen cases (2.07 per cent.) there were found the persistent apical clicks or crackles, of the type which had often proved confusing.

Minnesota Medicine, St. Paul

January, 1918, **1**, No. 1

69 *Orthopedic Treatment of Deformities Resulting from Incurable Paralysis.* A. J. Gillette and C. C. Chatterton, St. Paul.—p. 1.
70 **Harelip and Cleft Palate.* G. B. New, Rochester.—p. 8.
71 Some Popular Fallacies Regarding Pediatrics. W. R. Ramsey, Minneapolis.—p. 16.
72 The Tonsil Question. N. H. Gillespie, Duluth.—p. 20.
73 Tonsils Cause of, and Tonsillectomy Cure for Rheumatism. J. H. James, Mankato.—p. 23.

70. **Harelip and Cleft Palate.**—New says that in the Mayo Clinic they prefer to close the lip first when the child is between 3 and 4 mounths old, if he is gaining weight and doing well. From three or four days to a week before the operation the child should be fed with a spoon or dropper to accustom it to this method of feeding, since of course, after the operation, it is not allowed to nurse from the bottle or the breast. When there is a cleft of the alveolar process, as in the complete single harelip, the lip is brought together over it, but no attempt is made to approximate the alveolar process. The same procedure is used in the treatment of the premaxilla. In a case of double harelip the lip is brought together over the premaxilla and its normal rounded appearance is maintained. If the alveolar process is forced back in the single harelip or if the premaxilla is removed in the double harelip or a wedge-shaped piece is taken out of the vomer and the premaxilla forced back, the lip will be flattened and it will be almost impossible to correct the deformity. When united, the lip gradually presses back the alveolar process or premaxilla into its normal position, giving the normal rounded contour to the face and the correct alinement to the teeth. The time for closing the palate is when the child is from a year to a year and a half old, before it has begun to talk. The edge-to-edge approximation or the Langenbeck operation is the operation of choice for the closure of cleft palate.

Nebraska State Medical Journal, Norfolk

January, 1918, **3**, No. 1

74 Military Surgery. J. E. Summers, Omaha.—p. 1.
75 *First Aid to Injured.* J. C. Tucker, Long Pine.—p. 5.

76 Case of Double Ureterostomy for Inoperable Obstruction of Ureters. C. A. Roeder, Omaha.—p. 7.
77 Acute Gonorrheal Urethritis. H. R. Brown, Beatrice.—p. 10.
78 Tonsil in General Diseases and Its Treatment by General Practitioner. R. T. Jones, Edgar.—p. 12.
79 Internal Secretions. A. E. Guenther, Omaha.—p. 15.
80 Acidosis. M. J. Breuer, Lincoln.—p. 19.
81 Anesthesia and Analgesia in Labor. A. L. Smith, Lincoln.—p. 23.

New York Medical Journal

Jan. 26, 1918, **107**, No. 4

82 Complete Clinical Chart. S. S. Cohen, Philadelphia.—p. 145.
83 Treatment of Acute and Chronic Arthritis with Radioactive Wave Energy. E. Zueblin, Cincinnati.—p. 147.
84 Henry VIII, A Most Liberal Patron of Medicine. H. D. King, New Orleans.—p. 151.
85 Otosclerosis. M. W. Fredrick, San Francisco.—p. 153.
86 Ether Therapy in Surgical Infections and Its Effect on Immunity. J. Saliba, Elizabeth City, N. C.—p. 157.
87 How to Avoid Tuberculosis. O. R. Eichel, Albany.—p. 161.
88 Heartphone. C. C. Henry, New York.—p. 162.

New York State Journal of Medicine

January, 1918, **18**, No. 1

89 Mechanism of Intestinal Atony in Children; Etiology and Treatment. F. B. Turck, New York.—p. 1.
90 Practical Infant Feeding. J. R. Johnson, Syracuse.—p. 6.
91 *Lactic Acid Cultures in Treatment of Difficult Feeding Cases. F. Vander Bogert, Schenectady.—p. 13.
92 Noma. E. E. Hinman, Albany.—p. 15.
93 *Treatment of Whooping Cough. H. L. K. Shaw, Albany.—p. 18.
94 *Indicanuria in Children. W. J. Schuyler, Utica.—p. 22.
95 Laryngotomy in Children. J. F. McCaw, Watertown.—p. 26.
96 Surgery of Splenic Anemia. G. W. Cottis, Jamestown.—p. 28.
97 Operative Obstetrics. I. W. Potter, Buffalo.—p. 32.

91. **Lactic Acid Cultures in Infant Feeding.**—Colicky babies and infants, as well as older children, with severe chronic digestive disturbances, whose stools show distinct gas production on culture are in Bogert's experience almost invariably benefited by cultures of lactic acid bacilli, in frequent and full dosage. In the milder infections, diet alone, lowering of the sugar and fat percentage of the food will suffice. The improvement, however, is apparently far slower. Bogert has used liquid cultures. They must be kept cold, otherwise they very probably will destroy themselves by overproduction. Buttermilk was not used because of difficulty of procuring.

93. **Treatment of Whooping Cough.**—A study of the use of vaccines in 112 cases of whooping cough, in which this was the only treatment employed, shows that in 36 per cent. of the cases in which the vaccines were given after the whoop developed, the course of the disease was shorter than the usual duration of the whooping stage; that is, thirty days, but with no effect on the number and severity of the paroxysms; in 52 per cent. there were fewer paroxysms and of lessened severity, especially at night; in 12 per cent. of cases there was no improvement observed, either in the course of the disease, its severity or the number of paroxysms.

94. **Indicanuria in Children.**—Several cases are cited by Schuyler. The first is that of a child about 4 years of age who had been the victim for a year or more of prolonged attacks of vomiting accompanied by marked prostration. Investigation showed the presence of indican in the urine in large amount. In addition to this the oxalates in the form of oxalate of lime crystals were found in excess. There was no trace of albumin or sugar. Another child about 6 years of age had had repeated attacks of bronchial asthma. The urine was loaded with indican. Still another child, aged about 2 years suffered with severe attacks of bronchial asthma, and much the same underlying conditions were found, except that in this instance, biurate of soda was crystalized out of the specimen in large amount. In each case complete relief followed the correction of the intestinal putrefactive tendency.

Northwest Medicine, Seattle

January, 1918, **17**, No. 1

98 *Cerebral and Cardiac Types of Arteriosclerosis. T. H. Coffen, Portland, Ore.—p. 1.
99 Problem of Social Diseases in Modern Army. A. H. Peacock, Seattle.—p. 7.
100 Rural Sanitation in Relation to National Affairs in Time of War. T. D. Tuttle, Seattle.—p. 9.
101 War Surgery Abroad and at Home. R. W. Corwin, Pueblo, Colo.—p. 12.
102 Outlook for Surgery. H. N. Mayo, Salt Lake City.—p. 14.
103 Surgical Goiter. J. E. Else, Portland, Ore.—p. 16.
104 Operative Treatment of Goiter. W. I. Terry, San Francisco.—p. 20.
105 Quinin and Urea Injections in Goiter. L. F. Watson, Chicago.—p. 23.
106 Pancreatic Cyst. Removal of Three-Fourths of Pancreas. Recovery. J. T. Mason, Seattle.—p. 24.

98. **Types of Arteriosclerosis.**—Out of seventy-one cases analyzed by Coffen, blood pressure readings and clinical observations having been made in the last three or four years, fifty-two, or 70 per cent., fall according to the "heart-load" in the cardiac group. Fourteen are referred to particularly; five of these have died—three from cardionephritic symptoms, all finally in coma (uremia). One died suddenly with angina pectoris and one in diabetic coma. The majority of the cardiac patients showed on repeated examinations the urinary and clinical findings of chronic interstitial nephritis with increased output, traces of albumin, few hyalin and granular casts. One patient of the cardiac group had been unconscious for two weeks when first seen, in apparent uremia, but recovered on active cardiac stimulation, falling apparently in the cerebral edema type. In the cases falling into the cerebral group (nineteen) there were definite clinical evidences of cerebral hemorrhage in most but there were some anomalies, for repeated blood pressure readings showed in some a high heart-load at times, and some signs of cardiac strain. A considerable number of cases, according to the formula, fell into one or the other group, but so far show no outspoken cardiac or cerebral symptoms. These may later show the prognostic value of estimating the heart-load. Coffen's study shows that the majority of hypertension cases in arteriosclerosis show sooner or later cardiac strain. The estimation of the heart-load seems of value as evidence of increased work demanded of the heart, and to a certain degree of how much work. The kidney's share in arteriosclerosis seems more evident in the terminal stages. Of the patients with arteriosclerosis seen in the past four years, the kidneys function well, as a rule, while the patient is ambulatory.

Pennsylvania Medical Journal, Athens

January, 1918, **21**, No. 4

107 Arthritis: General Considerations and Classifications. L. Litchfield, Pittsburgh.—p. 217.
108 Metabolism and Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.—p. 220.
109 Diagnosis of Focal Infection. J. Daland, Philadelphia.—p. 224.
110 Development of Nephritis. O. Klotz, Pittsburgh.—p. 229.
111 Tests for Measurement of Renal Efficiency in Relation to Prognosis in Nephritis. H. A. Christian, Boston.—p. 233.
112 Classification and Treatment of Nephritides. M. H. Fischer, Cincinnati.—p. 236.
113 Composition of Sweat in Nephritis. J. Sailer, Philadelphia.—p. 245.
114 Social and General Management of Cases of Nephritis as Seen in Medical Dispensary. T. C. Kelly, Philadelphia.—p. 248.
115 Diseases of Eye from Focal Infections. A. Krebs, Pittsburgh.—p. 251.

Public Health Journal, Toronto

January, 1918, **9**, No. 1

116 Housing Problem in England with some Lessons for Canada. F. A. Dallyn, Ontario, Canada.—p. 1.
117 Pasteurization of Milk Supply. J. A. Boudouin, Lachine, Quebec.—p. 11.
118 Control of Venereal Disease. E. H. Marsh, Brooklyn.—p. 27.
119 Provincial Board of Health of Ontario. J. W. S. McCullough, Toronto.—p. 35.

Southwestern Medicine, El Paso, Texas

January, 1918, **2**, No. 1

120 Complement Fixation Reaction in Tuberculosis. C. N. Boynton, Phoenix, Ariz.—p. 9.
121 Treatment of Syphilis. J. H. Morford, El Paso.—p. 15.
122 *Method of Obtaining Skin Flaps in Repair of Mutilating Injuries of Hands or Feet. C. S. Vivian, Humboldt, Ariz.—p. 21.
123 Open Treatment of Fractures. W. L. and C. P. Brown, El Paso.—p. 23.
124 Diseases of Glans and Prepuce. W. R. Jamieson, El Paso.—p. 25.
125 Abdominal Cesarean Section with Local Anesthesia. T. B. Smith, Morenci, Ariz.—p. 32.

122. **Method of Obtaining Skin Flaps in Repair of Injuries on Hands and Feet.**—In cases in which it is necessary to

amputate a finger, for instance, Vivian makes use of the skin covering this finger to cover the denuded area of the injured hand or wrist. The bone being removed, the flap is spread out and sutured to the margin of the area which is to be covered. In Vivian's experience the skin is apt to slough for an area of about one eighth of an inch around its periphery, consequently, it is well to refrain from tight suture. Any lacerated or infected areas of the skin of the finger to be utilized should also be excised and may be sutured together in whichever direction it seems advisable. This procedure has been most successfully applied in an injury produced by explosive force at the wrist; in another in which the metacarpal bones were caught between the gears of a pump; and a third in which a percussion cap exploded in the palm of the workman's hand, tearing out the second and third metacarpals together with their articulations to the phlanges.

Tennessee State Medical Association Journal, Nashville

January, 1918, **10**, No. 9

126 Endometrium and Endometritis. H. M. Tigert, Nashville.—p. 345.
127 Some Facts About Tuberculosis. C. A. Robertson, Ridgetop.—p. 350.
128 Buccal Route for Operative Procedures on Anterior Part of Floor of Nose. W. L. Simpson, Memphis.—p. 355.
129 Inguinal Hernia. H. L. Fancher, Chattanooga.—p. 357.
130 Orthodontia as Science. O. A. Oliver, Nashville.—p. 360.

Vermont Medicine, Rutland

December, 1917, **2**, No. 12

131 Physical Examination of Drafted Men. J. M. Hamilton, Rutland.—p. 285.

Washington Medical Annals

January, 1918, **17**, No. 1

132 Centennial Anniversary Number.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Jan. 5, 1918, **1**, No. 2975

1 *Some Surgical Developments in Wound Treatment During War. A. W. M. Robson.—p. 1.
2 Treatment of Gonococcal Arthritis by Sensitized Gonococcal Vaccine. H. D. Haworth.—p. 4.
3 Muscle Nerve Testing During Operation. W. R. Bristow.—p. 6.
4 *Eye Changes in Trench Nephritis. J. Kirk.—p. 7.
5 Sycosis and Other Chronic Staphylococcal Infections of Skin, and Their Prevention. H. G. Adamson.—p. 8.
6 Treatment of Psoriasis by Roentgen Rays and Chlorin Ionization. C. E. de Silva.—p. 9.
7 *Acidosis as Possible Cause of Certain Symptoms in Diphtheria. B. A. Peters.—p. 10.
8 Simple Method of Mechanical Fixation for Fracture of Long Bones. J. E. Adams.—p. 12.
9 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 14.

1. **Surgical Developments in Wound Treatment.**—Robson says that in cases seen at the front the first duty of the surgeon in all shell wounds is to lay the wound fully open, including every pocket, to remove all foreign bodies and bits of clothing as well as loose particles of bone and dead or damaged tissue, to arrest bleeding, and to irrigate the wound thoroughly with some antiseptic such as eusol or neutral solution of sodium hypochlorite, or hypertonic saline or alcohol—in fact, to treat the patient on the general principles well known as suitable for poisoned wounds; this, followed by free drainage, was the method carried out with more or less success in the early months or first year of the war. Although this led to saving of life and to abolishing violent sepsis and gas gangrene, it left large wounds to heal by a long process of granulation, and led to exhaustion of vital powers, and to deformity caused by large scars. Now, however, there are several methods to choose from to shorten the treatment subsequent to the first necessary operation. The Carrel-Dakin treatment, with closure of the wound in from a week to a fortnight, if the patient can be taken to a good hospital, and kept there, is the ideal method, and has certainly given excellent results, but it is not good for patients that have to be transferred by sea and rail.

If the patient has to be transferred—as, indeed, have the greater number of patients—after cleansing the wound and drying it with alcohol, the bipp treatment with closure of the wound affords an excellent method; this is especially the case if the wound has been completely excised, when either bipp or the paste recommended by Hey can be used. The salt pack treatment used by Gray is excellent both for transport and subsequent treatment, to be followed in about a week or more by the Carrel-Dakin or bipp methods. For the care of patients with septic suppurating wounds arriving constantly at the base hospitals both in France and in England, the pathologic method followed out at Reading of grafting the purified wound with the Reading bacillus under packs of sphagnum moss is both simple and effective, and the experience there is that secondary hemorrhage has never occurred under this treatment.

4. **Eye Changes in Trench Nephritis.**—Seventy or eighty patients came in the same convoy from the Macedonian front. They were chiefly active cases of trench nephritis in soldiers between 20 and 30 years of age, and were examined by Kirk with reference to eye complications. Nearly all the cases presented the disease in a severely acute form, and almost invariably marked retinal congestion, with large pulsating veins were present. There were no signs then, however, of any patches of exudation or nerve involvement. Some weeks later, however, more definite changes of nerve swelling, accompanied by patches of retinal exudation were seen. While the spots of exudation were generally in the usual situations, that is, near the disk and in the macular area, in no case was seen the typical silvery starlike figure of the chronic cases as figured in the textbooks. Hemorrhage was not common. Those seen were of the small punctate variety, and not of the striate or flamelike character. The optic disk was often affected, the changes varying from a definite swelling to slight woolliness and indistinct edges. Small areas of edema were noticed, especially along the course of the veins. An important point was that in several of the series Kirk was able to trace the gradual absorption of some of the smaller patches of exudation.

Kirk believes that the pathology of this condition is probably an acute congestion resulting from some specific toxin, that the exudation which ensues is partly lymphoid and partly cellular in nature, and that this deposit probably clears up in the great majority of cases, without leaving any permanent results. The condition is one which is probably allied to the acute retinitis of pregnancy, scarlatina, and acute uremia, and should not be confounded with the retinitis of chronic kidney inflammation with its permanent changes in the retinal circulation vessels and tissues.

7. **Acidosis in Diphtheria.**—Peters' observation has lead him to believe that in certain cases of diphtheria, acidosis is a serious complication. Some of the symptoms in vomiting cases of diphtheria may be due to a previous acidosis causing suprarenal exhaustion. These symptoms are not prevented by antitoxin if the patient does not receive it by the third or fourth day of the disease. The administration of large amounts of alkali to patients showing these symptoms diminishes or stops vomiting but does not usually save the patient. The administration of 10 to 15 gm. of sodium bicarbonate daily for several days from the earliest possible moment, with full doses of antitoxin, appears to prevent the onset of these symptoms.

Dublin Journal of Medical Science

December, 1917, **144**, No. 552

10 Prognosis. H. C. Drury.—p. 345.
11 Eugenics Limited to Care of Pregnant Women, Advocating Expectant Mother Hospitals and Special Dispensaries. A. Smith.—p. 351.

Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1918, **21**, No. 1

12 History of Introduction of Antimony in Therapeutics of Internal Leishmaniasis. R. Jemma.—p. 1.

Lancet, London

Jan. 5, 1918, **1**, No. 4923

13 *Antiscorbutic Value of Milk in Infant Feeding. H. Chick, E. M. Hume and R. F. Skelton.—p. 1.

14 Roentgen-Ray Localization. E. W. H. Shenton.—p. 2.
15 *Treatment of Fractures in Warfare. W. A. Lane.—p. 4.
16 Treatment of Wounds Involving Mucous Membrane of Mouth and Nose. P. P. Cole.—p. 11.
17 Entameba Histolytica Infections. W. MacAdam.—p. 15.
18 Wassermann Reaction. F. E. Taylor.—p. 19.
19 Value of Roentgenogram in Surgery of Facial Injuries. H. M. Johnston.—p. 10.

Jan. 12, No. 4924

20 *Antenatal Syphilis: Suggested Action of Chorionic Ferments. A. J. Routh.—p. 45.
21 Heart Failure and Pregnancy. J. Mackenzie.—p. 50.
22 Some Points in Diagnosis and Treatment of Dysentery Occurring in British Salonika Force. D. Graham.—p. 51.
23 *Wounds of Chest as Seen at Advanced Operating Center. W. A. Rees and G. S. Hughes.—p. 55.

13. **Antiscorbutic Value of Milk in Infant Feeding.**—Although raw cow's milk contains the accessory food factor (vitamin) which protects from scurvy, this is present in small amounts and is further diminished by heating or drying. Therefore, the authors suggest that infants fed on heated or dried milk, or on any milk substitute, should receive also some antiscorbutic ration, such as fresh fruit juice or potato. It is probable that the raw juices of turnips and swedes can also be employed.

15. **Treatment of Fractures in Warfare.**—In Lane's experience during the war no patients have been as badly treated as those having simple fractures. In the large majority of instances the unsatisfactory nature of the result has been due apparently either to a want of familiarity with the mechanics of fractures or to such an imperfect operative technic as suggested but little knowledge of the very important details which a surgeon should employ in operating on fractured bones. Large numbers of simple fractures have been put up in plaster of Paris, or in wooden or metal splints, without any apparent regard to the character of the displacement, and the fragments have been allowed to unite in such positions as either rendered the limb useless or have materially affected its usefulness. As regards the operative procedures in fractures, it is unfortunate that many surgeons appear to imagine that the very moderate amount of cleanliness which enables them to perform abdominal or other operations with success is sufficient for the methods required to expose a simple fracture, to place the fragments in accurate apposition, and to retain them by means of steel plates and screws.

Apart from infection of the wound, the surgeon failed frequently to obtain a successful result for the reason that he was unaware of the very simple means by which, in cases of fractures by direct or indirect violence, the broken surfaces can be brought into accurate apposition. Not succeeding in doing this, he had occasionally endeavored to establish apposition of fragments and axial continuity of the shaft by cutting away portions of the bone. As to the operative treatment of fractures produced by projectiles, Lane says, that only in very exceptional circumstances is it advisable to fix fragments of broken bones together by means of plates and screws while the wound is very foul. Should the surgeon have to resort to their use he must be most careful to see that perfect drainage is established. It is advisable to postpone operative interference till the wounds have healed for some considerable time, and until the tissues are, in all probability, free of organisms. If any apparently septic focus is observed during an operation, a culture and a vaccine should be obtained from it and employed at once should symptoms of infection of the wound develop. If there is any definite suspicion of the presence of latent sepsis, Lane advises irrigation by Carrel's method; if not, the wound should be closed completely at the time of operation. On no consideration whatever should any bone be removed. Accurate apposition can always be obtained if the surgeon knows how to bring it about. This is effected by manipulation with suitable instruments.

Much heavier steel plates are required in the class of malunited fractures produced by projectiles than are usually employed in the less comminuted fractures of civil life. Joints in relation with the fractured bone should be moved as soon as possible after the operation in order to avoid stiffness and limitation of movements, providing no strain shall be exerted on the junction likely to develop nonunion, the sooner the patient who has been operated on for fracture of one or more long bones of the leg is up and about, the more bone will be deposited and the more rapid will be the repair at the seat of fracture. Lane emphasizes the fact that while the operative treatment of compound fractures produced by projectiles is the most important of all surgical procedures in warfare, it is well to remember that it demands a degree of asepsis, mechanical skill, resource and judgment in excess of that required for other operations for war conditions. Besides sepsis, usually introduced from without, hemorrhage is the chief risk which is associated with these operations. This can be best avoided by the use of very powerful hemostatic forceps, which are left in position in the wound for as long as possible during the course of the operation. A ligature is rarely required.

20. **Antenatal Syphilis and Chorionic Ferments.**—Congenital syphilis is a more serious infection than primary syphilis, and the treatment of congenital syphilitics is less satisfactory than in those infected primarily. Routh believes that not only is paternal infection of the ovum by the seminal fluid possible, but that it is not infrequent, and that the mother may become (1) directly infected either before or with fertilization if she has a genital abrasion or an erosion of the cervix; or (2) indirectly infected during the pregnancy via the embryo (conceptional syphilis); or (3) there seems evidence to show that in a few cases she may be infected by the spirochetes in a granule stage, and that these may develop into the mature organism after pregnancy. More usually, however, the embryo is infected by the already infected mother, either by the infection of the ovum while in the Graafian follicle as part of the generalization of the disease, or after fertilization when burrowing in the uterine mucosa, or by transplacental infection. Some very early abortions may be the result of paternal infection of the ovum, and the woman may have escaped infection owing to the expulsion of the ovum very soon after its fertilization and infection, before there is any true fetal circulation. The percentage of intra-uterine deaths from syphilis is variously estimated, but syphilis is the commonest cause of abortions and stillbirths. Routh's opinion is that in city populations about 25 per cent. of stillbirths and abortions are due to syphilis. In rural districts the proportion is probably much less.

Routh points out that the "granules" mentioned above are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida*, which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules. Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes.

23. **Wounds of the Chest at Advanced Operating Center.**—According to Rees and Hughes primary hemorrhage is the chief cause of death during the first few hours after the

receipt of a wound of the chest. When severe, the patients are brought in blanched, restless, and with a rapid pulse. Restlessness is the most marked feature of the case. The treatment for these bad cases is mainly expectant, keeping the patient as quiet as possible and easing pain by the use of morphin or heroin. They require very careful handling, rolling them over on to their sound side to dress the wound being sometimes sufficient to cause death. The blood usually comes from the deeper blood vessels in the lung, and Nature's method of arresting it is to cause collapse of the lung. The authors have not seen a single case in which severe hemorrhage came from an intercostal artery, and therefore plugging of the wound is of no real benefit, and moreover, it prevents the entrance of air into the pleural cavity, which is the most rapid way of causing collapse of the lung. Hemoptysis was present in 65 cases out of 100 undoubted penetrations of the chest in which its presence or absence was noted. In the authors' series there were 44 cases of leaking pneumohemothorax and 72 cases of hemothorax or closed pneumohemothorax. The mortality in the leaking pneumohemothorax cases was 61 per cent.

Three methods of dealing with leaking cases are mentioned: (*a*) Simple dressing. The wound is swabbed over with an alcoholic solution of picric acid or iodin and dry gauze applied. (*b*) Plugging the wound, to arrest hemorrhage and also to hinder the entrance of germ-laden air. In most cases, the authors do not advocate this method of treatment. (*c*) Sewing up the wound, with or without the removal of the foreign body. The removal of the foreign body from the lung is only justifiable in a few selected cases, but the sewing up of the wound is advisable in all cases of leaking chest wounds, since it is by this means one can prevent the pleural cavity from becoming infected in more than half the cases. The treatment of the cases of closed pneumohemothorax differs in no way from that of an ordinary hemothorax. The authors had 72 cases of hemothorax and closed pneumohemothorax with 14 deaths, a mortality of 19.3 per cent. Of the fatal cases, 5 patients died from primary internal hemorrhage. Of the 67 patients that survived forty-eight hours, 8 became infected (11.9 per cent.) and 5 died from this cause, a mortality rate of 7 per cent. Bronchopneumonia caused the fatal result in one patient, and heart failure in two.

Medical Journal of Australia, Sydney

Dec. 22, 1917, **2**, No. 25

24 Trench Nephritis. W. M. Shepherd and L. J. J. Nye.—p. 514.

December 29, No. 26

25 Use of Giant Magnet. J. L. Gibson.—p. 533.

Practitioner, London

January, 1918, **100**, No. 1

26 Mental War Cripples. G. H. Savage.—p. 1.
27 Treatment of Tuberculous Disease of Larger Joints and of Spine. H. F. Waterhouse.—p. 8.
28 Treatment of Indigestion. G. Rankin.—p. 21.
29 Dietetic Treatment of Diabetes Mellitus. R. T. Williamson.—p. 35.
30 Venereal Diseases as We See Them Today. J. E. R. McDonagh.—p. 41.
31 Ministry of Health. A. W. Russell.—p. 70.
32 Swallowed Thread as Guide in Instrumentation of Narrowed Esophagus; Report of Case of Cardiospasm in Which Method Was Employed. C. H. Whiteford.—p. 81.
33 Management of Neurasthenia, Psychasthenia, Shell Shock and Allied Conditions. F. C. Forster.—p. 85.
34 Treatment of Whooping Cough by Vaccines. W. M. Gray.—p. 91.
35 Case of Gestation Prolonged to Twelve Months. J. T. R. Miller.—p. 94.

Bulletin de l'Académie de Médecine, Paris

Dec. 18, 1917, **78**, No. 49

36 *High Heels. V. Galippe.—p. 726.
37 *Regulation of the Sale of Proprietaries. Léger and others.—p. 732.
38 *Surgery of the Stomach. Témoin.—p. 737.
39 *Gastropylorectomy for Gastric Ulcer. V. Pauchet.—p. 741.
40 *Cerebral Tetanus. L. Bérard and A. Lumière.—p. 744.
41 *Simplified Intratracheal Injections. M. Mignon.—p. 746.
42 *Eye and Ear Complications of Meningitis. P. Zarzycki.—p. 748.
43 Child Welfare Work in Paris District during Third Year of War. A. Pinard.—p. 751.

36. **High Heels.**—Galippe remarks in connection with the fashion for high heels: "Ce serait mal connaitre la psychologie féminine que de croire, un seul instant, que la coquetterie cédera jamais le pas à l'hygiène." P. Camper of the Hague called attention in 1781 to the crime against physiology of the Louis XV heels, and Onimus again in 1877, when they were again on the crest of the wave of fashion, and Galippe says he has been declaiming against them the last year but that his words have not had the slightest effect even in his own immediate circle.

37. **Regulation of Sale of Proprietaries.**—After prolonged discussion through several weeks the Académie passed resolutions calling for stricter application of the laws in force regarding secret remedies, and demanding that the term "secret remedy" should be defined to mean any medicament, simple or compound, the qualitative and quantitative composition of which is not yet known. Hygienic and alimentary proprietaries—when they are designed for the use of the sick—should also bear on the label the exact indication of their composition. It was reiterated that the aim of the resolutions was to make it impossible for any substance to be administered to the patient without the physician's knowledge.

38. **Surgery of the Stomach.**—Témoin insists that while gastro-enterostomy may prove successful in correcting morbid conditions when mechanical disturbance alone is responsible for them, this does not suffice where there is inflammation or pain. In these cases the pylorus should be resected, with possibly the antrum, removing the inflammatory lesion into sound tissue. By shelling off the vessels there is no need for ligation, and the whole operation is complete in from twenty-five to thirty-five minutes. With his twin forceps, he says, no assistance is required, and there is no traction on or laceration of the tissues while they ensure the asepsis of the field of operation. These conclusions were published last year on the basis of 117 operations of the kind, and he now reports on an additional series of 56 cases. Five died in this last series, but four of the deaths were explained by other causes.

39. **Gastropylorectomy.**—Pauchet declares from twenty years of experience and over a thousand operations on the stomach that the majority of disturbances from dyspepsia are not accompanied by any lesion in the stomach. Usually the dyspepsia is of reflex origin, from some lesion in the gallbladder, a kink or tumor in the bowel, appendicitis, ptosis of stomach or colon or both, or from morbid conditions in the lungs, heart or kidneys, tabes or acetonemia. When the disturbances are actually of gastric origin and are chronic or recurring, a gastric or duodenal ulcer is almost certain, the latter especially if the patient is a man. Gastric ulcer is almost always on the lesser curvature. Acute recent gastric ulcer often heals under repose, ulcer diet and bismuth. The other cases in his experience were of long standing but the symptoms were far from the classic set of symptoms, and the cases had been labeled hyperchlorhydria, nervous dyspepsia, Reichmann's disease, etc. In 80 per cent. of his gastric cancer cases the cancer had developed on the basis of an ulcer, and the ulcer had seldom been recognized. The only operation for gastric ulcer that cured completely and permanently was gastropylorectomy, and this he advocates as the routine procedure. He makes a point of examining directly the posterior aspect of the stomach. The portion of the stomach to be resected is shelled free from vessels with a compress and no ligatures or forceps are required for hemostasis. After resection between clamps, the two stumps are each sutured to make a blind pouch. After the operation the patient's diet must be strictly hygienic to protect the insufficient liver, kidneys and glands which evidently cooperated in the production of the ulcer.

40. See Paris Letter.

41. **Intratracheal Injections.**—Mignon combines traction of the tongue with pushing the epiglottis out of the way with the finger. This facilitates intratracheal injection of a fluid, without special illumination or assistance. The epiglottis is pushed down with the left index finger until it rests on the drawn-out tongue. This opens the larynx wide while reducing the opening into the esophagus to the minimum.

42. **Ear and Eye Complications of Meningitis.**—Zarzycki found complications on the part of the eye or ear in about 15 per cent. of his numerous cases of epidemic cerebrospinal meningitis. Every eye or ear affection when meningitis is prevalent should be suspected and bacteriologic examination made, with prompt serotherapy if the findings are positive. He applies the antiserum locally also, injecting it at need into the lacrimal sac or under the conjunctiva.

Lyon Médical

December, 1917, **126**, No. 12

44 *Acute Bacillary Dysentery. P. Dufourt and A. Devic.—p. 541.
45 French Pioneers in Heliotherapy. G. Rivier.—p. 552.
46 *War Wounds of Joints. R. Leriche.—p. 556.
47 War Bread. R. Lépine.—p. 578.

44. **Acute Bacillary Dysentery.**—Dufourt and Devic insist that the antiserum should be given early in large and repeated doses. If it fails to relieve promptly and ensure a brief convalescence, mixed infection should be suspected. The excessive loss of fluids must be combated vigorously, having the patient drink at brief intervals small amounts of aromatic rice water, tea, much sweetened decoctions or vegetable bouillon. Large amounts of fluids should not be given the patients but small amounts should be distributed among them every hour or half hour. Fractioned in this way, the fluid is absorbed rapidly and in the upper intestine. In urgent cases, artificial serum is called for, from 500 to 1,000 c.c., with a little epinephrin or suprarenal extract in case of suprarenal insufficiency. Highly sweetened drinks are nourishing, and also milk boiled and skimmed, a third or half a liter, taken in very small amounts at a time. The frequent watery passages, soiling bed and body linen, require that an actual zone of protection should be arranged about each person with bacillary dysentery. The passages and linen must be sterilized at once, and every one approaching or touching the sick should wash the hands frequently, at least before eating. Contagion can thus be warded off, and prophylactic serotherapy is unnecessary. As it protects for only about ten days, it is useful only for the attendants.

46. **War Wounds of Joints.**—Leriche emphasizes certain points which experience has demonstrated to be of importance in treatment of war wounds of joints. One is the necessity for primary suture in the early treatment of wounds of the synovial membrane with or without a foreign body. Time has also shown that an early secondary suture is often possible when the primary suture was out of the question. It is better to do it early than later, the second, third or fourth day, if it can be done then. The ultimate outcome has shown that a lateral arthrotomy is preferable to a transverse opening of the joint through the tendon; also that a small bone lesion or one far to the side should not modify the general line of treatment; also that it is dangerous to leave a deep ragged wound in the epiphysis enclosed in the synovialis, both on account of possible flaring up of infection later, and on account of the danger for the functioning of the joint. When the parts of the joint have been injured to such an extent as to throw the joint out of gear (*disloquer la statique articulaire*), resection is preferable. Another point learned from experience is the advantage of subperiosteal resection at all stages. Leriche has consistently advocated primary resection, but insists on the necessity for conservation of the periosteum with extreme care. This requires the patient methodical use of a cutting rasp or bone-scraper (*rugine*). The aim is to retain a periosteum-capsule sheath, assuring the continuity of the sustaining soft tissues of the joint leaving the supporting ligaments intact and also the muscles and tendons attached to it. This sheath holds the parts in place and maintains the normal outline of the joint. As bone tissue proliferates, this sheath guides it into proper proportions, while the normal play of the muscles models the newly formed soft bone. The articulation is thus reconstituted on the preexisting physiologic type. The operation consequently must be inside the capsule and done extremely cautiously, sacrificing everything to the physiologic conception and the concern for the ultimate result. This is Ollier's method and it is giving results now more brilliant than even Ollier hoped for.

Presse Médicale, Paris

Dec. 6, 1917, **25**, No. 68

48 *Classification of Tachycardia. A. Martinet.—p. 693.
49 *Prophylaxis of Secondary Hemorrhage from War Wounds. Revel.—p. 694.
50 Crile's Anoci-Association. J. Luzoir.—p. 695.

Dec. 13, 1917, **25**, No. 69

51 *War Wounds of the Hip. V. Pauchet.—p. 701.
52 *Mechanism of the Seroreaction in Syphilis. A. Vernes.—p. 704.
53 *Adjustable Screw Extension for Fractures. C. Willems.—p. 706.

48. **Classification of Tachycardia.**—Martinet discusses paroxysmal, temporary and more or less permanent tachycardia, saying that the paroxysmal form should be suspected when the pulse is over 110 and there is no goiter or fever and the rate is not sensibly modified by change from the horizontal to the vertical position. The accidental or temporary tachycardia may be traced to fever, exercise, to change of position, emotions, pain or toxic influences from tea, coffee, kola or theobromin. The more or less permanent tachycardia without actual heart lesions is encountered with exophthalmic goiter or as a neurosis, and he emphasizes that every feature of a tachycardia neurosis is identical with those of the exophthalmic goiter tachycardia—even the morning exacerbation—"the only difference between them is the neck." There is in both evidently intense excitation of the sympathetic which not only accelerates the heart action but has a vasoconstricting and pressure-raising action. He has encountered several cases in which all the types of tachycardia were observed at different times, finally settling down into the exophthalmic goiter type.

49. **Prophylaxis of Secondary Hemorrhage.**—Revel insists on the necessity for systematic exploration of the vessels in case of a war wound. The vessels in the region may be injured at more than one point, and hence they should be thoroughly investigated at once as the only means to ward off secondary hemorrhage. He had twenty cases of secondary hemorrhage before this thorough exploration was made the routine procedure, but since then it has been warded off. The injury of the vessel may heal spontaneously if the wound is aseptic, but even imperceptible latent infection may be enough to start the secondary hemorrhage in these cases of dry vascular wounds or when the wound is close to some large vessel.

51. **Resection of Hip Joint for War Wounds.**—Pauchet gives twelve illustrations showing the various procedures required for different kinds of war wounds of the hip. He also shows the preferable plaster cast and the spring separate sole that holds the foot up, to ward off equinism.

52. **Seroreaction in Syphilis Placed on Mathematical Basis.**—Vernes gives a number of diagrams showing the varying precipitation of colloids with different proportions of certain drugs or other substances added to them. He refers in particular to the colloids in human serum. He distributed in a set of test tubes 2 c.c. of a fine suspension of ferric hydroxid (*hydrate de fer jaune*) prepared with 0.225 gm. ferric acetate in 250 c.c. of distilled water. To each tube is then added a graduated amount of normal human serum diluted in enough 9 per thousand saline to make a constant amount of 0.2 c.c. The diagram shows that there is complete flocculation on addition of some of these graduated amounts while there is none with other amounts. When the normal human serum has been added in proportions of 0.2:1.5 c.c. down to 0.2:10 c.c. there is complete flaking, but there is no flaking with from 0.2:12 c.c. to 0.2:40 c.c. Then in the tubes with from 0.2:41 to 0.2:90 c.c. flocculation is complete again, but with lesser amounts of the serum than 0.2:90 c.c. there is no further flaking. When syphilitic serum is used, precipitation occurs more readily and earlier in each of these phases. This is a differentiating reaction with syphilitic serum which seems to be constant and reliable, when the test fluid is made with care to produce a fine suspension of a given stability so that precipitation will occur with syphilitic and not with normal serum.

The suspensions used to date for the Wassermann and other serologic tests have been empirically determined.

Vernes' research, he declares, places it on an exact basis. The suspension found most convenient was prepared by grinding in a mortar 0.04 or 0.05 or 0.1 gm. pure ferric acetate with a little distilled water, then decanting, grinding anew with a little more distilled water and decanting, repeating this until there is no more of the ferric acetate in the mortar. Then more water is added to bring the whole to 250 c.c. The suspension is then heated to boiling in a porcelain capsule and boiled hard for twenty minutes, adding more water repeatedly to keep the level at 250 c.c. The fluid is then set aside to cool and is brought up to exactly 250 c.c. with distilled water. This fluid is then distributed in a set of small tubes, 2 c.c. in each, and to each tube is added the serum in progressively decreasing amounts as stated above. The periodical rhythm of precipitation or nonprecipitation differs characteristically with syphilitic and with normal serum. With a 0.04 suspension of the ferric acetate in 250 c.c. of water, precipitation with normal serum does not begin until past the figure 0.2: 9 c.c., while with syphilitic serum it begins already with 0.2: 3 c.c. Syphilitic serum thus displays greater precipitating power than normal serum, and the flaking zones are thus widened.

53. **Screw Extension for Fractures.**—Willems gives illustrations of a method for adjustable extension, driving a long screw into the condyles or above the malleoli on each side of the leg. Each screw carries a ring from which a chain is suspended, the lower ends of the chain holding a crossbar. The force for extension is applied to the center of this crossbar some distance below the foot. An upright fastened in the plaster splint permits suspension also, and a strap from the upright arch prevents the forepart of the foot from dropping into the equinus position.

Progrès Mêdical, Paris

Dec. 1, 1917, **32**, No. 48

54 *Pyelonephritis Following War Wounds. R. Uteau and R. Schwab. —p. 403.
55 Tardy Meningitis. A. Challamel.—p. 404.
56 *Camp Bed. Bonnette.—p. 406.

Dec. 8, 1917, **32**, No. 49

57 *Recent Acquisitions in our Knowledge of Malaria. A. Bernard. —p. 413.
58 *Treatment of Malaria. Leenhardt and L. Tixier.—p. 424.
59 Hibernation of the Anopheles in Southeastern France. L. Léger and G. Mouriquand.—p. 426.
60 Management of Hospital for Malaria. C. Garin and C. Pasquier. —p. 427.
61 Novarsenobenzol in Treatment of Malaria. A. Bernard.—p. 429.

54. **Pyelonephritis after War Wounds.**—Uteau and Schwab report four cases in which pyelonephritis consecutive to a war wound persisted interminably, with complete failure of medical measures, up to two years. In three of the four men, functional tests showed the second kidney was not working quite properly—evidently a sympathetic disturbance. There was a foreign body in one case and the kidney was exposed and incised. The projectile was not found; it proved to be in the abdominal wall, but the nephrotomy was followed by prompt and complete subsidence of the pyuria, and they commend simple nephrotomy as the routine treatment in such cases. The only objection to it is that the men with simple pyuria from this cause may refuse to permit nephrotomy as they do not want to be cured and sent back to the front, not being incommoded by their pyuria.

56. **Camp Bed.**—Bonnette gives an illustration of a bed made from four planks. One is cut up to form the end supports which hold the other three planks firmly without screws or cords.

57. **Malaria in France.**—Bernard says that the campaign in Macedonia has resulted in the contracting of malaria by thousands of the French troops who have since scattered it all over France. He regards the definite cure or sterilization of the malaria patients as impossible, and hence destruction of the hematozoon is difficult. The best prophylaxis is to send the malarial soldiers to hospitals in a mountain district where there are no mosquitoes. The most promising outlook for treatment is by watching out for the appearance of schizonts in the blood. The gametes become transformed into schizonts and as soon as the latter have produced enough toxins, the attack of malaria develops unless the schizonts are destroyed by quinin or novarsenobenzol during this susceptible stage. By examining the blood every third day, this transformation into schizonts can be detected early and the schizonts can be killed off with these drugs as fast as they appear, and the attack can thus be warded off. It is hard to get the men to submit to these repeated examinations as they do not feel sick between the attacks. It has been found well to group the malarial men in farm colonies, with strict medical supervision; the results have been excellent. Nearly two pages of recent bibliography on malaria are appended.

58. **Treatment of Malaria.**—Leenhardt and Tixier extol the advantages of giving quinin by the intramuscular route as they have found it so effectual in their service, no further parasites being found in the blood. Time alone will tell whether the disease has been definitely eradicated. In over 5,000 injections of the kind in a five month period they have never had suppuration.

Revue Médicale de la Suisse Romande, Geneva

December, 1917, **37**, *No. 12*

62 *Anatomic Effects on the Lung of Induced Pneumothorax. R. Burnand.—p. 729.
63 *Eosinophilia after Resection of Sciatic Nerve. N. Loewenthal.—p. 740.
64 *Creatinin Content of Blood. J. Tchertkoff.—p. 748.
65 *Prosthesis for the Nose. Veyrassat.—p. 754.
66 Case of Pneumic Hypertrophic Osteo-Arthropathy. G. A. Guye. —p. 760.
67 *Ileus Induced by Bunch of Glands. G. A. Guye.—p. 769.

62. **Anatomic Effects of Induced Pneumothorax.**—Burnand reports the findings in five cadavers. The progress of lesions in the other lung had resulted fatally notwithstanding the benefit from the induced pneumothorax in the lung first affected. The pneumothorax had lasted from three and a half to eighteen months. The necropsy findings in all testified to a manifest and intense curative action on the tuberculous focus from the compression. They show further that true anatomic healing is still remote or fragile, even when the clinical manifestations seem to demonstrate a complete cure. They testify further to the fact that artificially induced pneumothorax is after all merely a palliative procedure, which explains the mishaps later. All this should not discourage, he says, but should stimulate us to perfect the method with more prudence, more therapeutic perseverance, and greater caution in the use of the term "cured."

63. **Eosinophilia after Resection of Sciatic Nerve.**—Loewenthal gives a colored plate showing the findings in the inguinal glands after resection of the sciatic nerve in rabbits.

64. **Determination of Creatinin in the Blood.**—Tchertkoff describes a technic with which it is possible to detect grave insufficiency of the kidney by the creatinin content of the blood. With only 15 c.c. of blood serum it is possible to ascertain the creatinin content and also the indican and urea content, and thus obtain deep insight into the kidney functioning. He says that the normal creatinin content does not surpass 18 mg. to the liter of serum. Above 25 mg., retention is certain. First there is retention of urea, then of creatinin and, later of indican. As the kidney functioning improves they disappear in reverse order. The serum is freed from albumins with an equal quantity of a 20 per cent. solution of trichloracetic acid. After agitation it is filtered, and to 2.5 c.c. of the filtrate is added an equal amount of a saturated solution of picric acid and 1 c.c. of a 20 per cent. solution of sodium hydroxid. By the end of fifteen minutes the fluid changes in tint to a yellow or orange, proportional to the creatinin content. If the tint in ten minutes is still light yellow, the creatinin content is probably within normal range. Above 35 mg. to the liter, the tint shows orange or even red. With a colorimeter the exact figure can be determined.

65. **Restoration of the Nose.**—Veyrassat gives an illustration of the fine result obtained by using a sliver from the

tibia to form a support for the upper half of the nose which had been shot away. He then expatiates on the necessity for general anesthesia in such cases, as the measures for local anesthesia depress the vitality of the tissues and separate the layers of tissues.

67. **Ileus from Enlarged Glands.**—In the case described by Guye a tuberculous process in the hip joint had caused an inflammatory reaction in the prevertebral glands, and this in turn induced the obstruction of the bowel. Except for the sudden onset of symptoms, there was nothing to suggest acute invagination. The laparotomy disclosed no cause for the ileus except a bunch of ten enlarged glands adherent to the lumbar spine, and connected with the inguinal region by a chain of enlarged glands. No attempt at resection was made. There was no movement of the bowels until thirty-six hours later, and the gland tumor gradually retrogressed. The operation thus seems to have been superfluous but, owing to the difficulty of differentiation in such cases, it is better to err on the safe side and ascertain the nature of the tumor palpated, even although the general condition continues good. The operation was deferred in this case until the pulse suddenly ran up to 120, although the temperature kept normal and the child had vomited only twice in the last twelve hours.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 15, 1917, **47.** No. 50

68 *Maternity Tetany. H. Guggisberg.—p. 1713.
69 Is a Higher Birth Rate Desirable? A. Goenner.—p. 1722.
70 *Relations between Tuberculosis and Shriveling Processes in Liver and Kidney. S. Schönberg.—p. 1726.

68. **Tetany in the Pregnant and Parturient.**—Guggisberg comments on the comparatively frequent occurrence of tetany in pregnant or puerperal or nursing women although so few cases are reported. He thinks it must sometimes be mistaken for hysteria. It occurs more frequently in certain districts and at certain times. The symptoms generally appear first during the last half of pregnancy in women who have borne several children, and it returns in later pregnancies, in a more pronounced form and earlier. In severe attacks there may be total loss of consciousness. Sometimes there may be only one attack or there may be a series, with contracture in the intervals. One woman complained that she was unable to use her fingers in knitting during the intervals. There may be psychic disturbances; in one case there was loss of memory. Trophic changes in the hair, the nails and the crystalline lens were observed in some cases. The characteristic spasms affect mainly the arms although other groups of muscles may be involved. The Trousseau and Chvostek signs aid in differentiation; the former can be elicited only with tetany. The Erb phenomenon is also an important sign. The children of women with severe maternity tetany may be quite healthy or develop tetany themselves. The clinical picture of tetany suggests the action of some toxin. There is acidosis, an increase in the hydrogen ions in the blood, and there is much to sustain the assumption that the disturbance in the metabolism under the influence of the maternity deranges the functioning of damaged parathyroids, which under other conditions are equal to their task. Guggisberg removed the parathyroids from rabbits and then was able to bring on tetany at will by injecting placenta extract. This confirms the assumption that the endocrine function of the placenta is involved in the production of tetany. It is significant, he adds, that the so-called pregnancy toxicoses are practically never encountered in the puerperal tetany cases. The parathyroids from a cadaver might be grafted to cure severe tetany, but nothing in this line in treatment of puerperal tetany has been published. Parathyroid preparations have given good results in some cases, and even thyroid treatment, but they have failed completely in others, and serotherapy has also failed in the clinic although giving good results in experimental research.

Calcium is the main reliance in treatment. Guggisberg's experience with it confirms the favorable reports of others. In one case of very severe, recurring maternity tetany, with cyanosis and loss of consciousness during the attacks, he succeeded in arresting them by giving 1 gm. calcium lactate four or six times a day. The woman was seven months pregnant, and delivery occurred normally. Milk and vegetables are useful on account of the high calcium content. As little salt should be used as possible, to reduce the amount of sodium in the organism, thus clearing the field for the calcium salts. He warns that morphin, ergot, atropin, calomel, tuberculin, pituitary extract, chloroform and ether should all be avoided when there is a latent tendency to tetany, as they are liable to bring on an attack, as has been repeatedly confirmed in animals. As the attacks of tetany are accompanied by much pain, sedatives may be indicated, but chloral or bromids should be given the preference. The course of puerperal tetany is generally favorable but there are cases on record with a fatal outcome. Some advocate hastening the evacuation of the uterus, but he thinks that it is much wiser to leave this to Nature, smoothing the way for it and restricting medication to the minimum.

70. **Tuberculosis as a Factor in Chronic Kidney and Liver Disease.**—Schönberg has found cirrhosis of the liver quite common in tuberculous cadavers at Basel. In some cases no evidence of tuberculosis could be found elsewhere but the discovery of tubercles in the cirrhotic liver or contracted kidney confirmed the tuberculous element. Similar liver findings were encountered also in cattle. In the cattle they formed the connecting link between the experimentally induced cirrhotic processes in the livers of tuberculous guinea-pigs and the spontaneous cirrhosis of the liver in man. Hössly found cirrhosis of the liver in Greenland where there is no liquor drinking but where tuberculosis is very prevalent. Schönberg is convinced that tuberculosis is liable to play a predominant rôle in the development also of contracted kidney. Among the cases cited to sustain this view is that of a woman of 25 with the clinical symptoms of pronounced contracted kidney; necropsy showed a combination of arteriosclerotic and true contracted kidney. The kidneys were also studded with tubercles and tubercle bacilli were found, but no other signs of tuberculosis elsewhere could be detected. In another case the urine contained pus and tubercle bacilli supposed to come from the left kidney. This kidney was removed but showed no anatomic signs of tuberculosis, presenting merely the aspect of contracted kidney, except for the tubercle bacilli found in it.

Policlinico, Rome

Dec. 9, 1917, **24**, No. 50

71 History of Introduction of Antimony in Treatment of Leishmaniosis. R. Jemma.—p. 1457.
72 Paroxysmal Hemoglobinuria in Child with Inherited Syphilis. V. Russo.—p. 1466.
73 Morphology of the Tubercle Bacillus. P. Mariconda.—p. 1467.

December, 1917, **24**, Medical Section No. 12

74 *Diagnosis of Pulmonary Tuberculosis. A. Signorelli.—p. 469.
75 Roentgenoscopy of Ileocolic Invagination. L. Mancinelli.—p. 484.
76 *Analysis by Roentgenoscopy of Pains in the Stomach. P. Alessandrini.—p. 491.
77 Roentgenoscopy of Supernumerary Bones in the Feet. C. Guarini.—p. 498.
78 *Preventive Intravenous Vaccination against Meningitis. G. Quarelli.—p. 501.

74. **Diagnosis of Pulmonary Tuberculosis.**—Signorelli discusses this question from the military standpoint, and emphasizes in particular the importance of the roentgen findings.

78. **Vaccination against Meningitis.**—Quarelli relates favorable experiences with autogenous vaccines injected by the vein in prophylaxis of epidemic meningitis.

Rivista Critica di Clinica Medica, Florence

Dec. 8, 1917, **18**, No. 49

79 *Metabolism in Exophthalmic Goiter. C. Capezzuoli.—p. 489. Commenced in No. 47, p. 469.

Dec. 15, 1917, **18**, No. 50

80 Relapses in Malaria. C. Bartolotti.—p. 501.
81 *Multiple Osteomyeloma with Albumosuria. A. Martiri.—p. 506.

79. **Metabolic Findings in Exophthalmic Goiter.**—Capezzuoli reviews representative literature on exophthalmic goiter, especially the results of operative treatment. His own experience suggests that authors might find on reexamination later that some of their cases reported as cures have had the symptoms return. This occurred in one of the two cases he

reports with minute details of the metabolic findings. The cure in the case of the woman of 27, after removal of four fifths of the thyroid, was so complete that even the various metabolic findings had changed to the normal type by the end of three months. The only symptom left was that the eyes still protruded somewhat, but not so much as before the operation. After several months of apparent cure the symptoms returned and the part left of the thyroid enlarged. By the end of the year the woman was having an attack of tetany every twenty or twenty-five days, but otherwise the symptoms never reached the intensity of the preoperative period until after a fright at the twentieth month. Then general agitation and attacks of unconsciousness with cyanosis were occasionally observed, in addition to the other symptoms, but the general condition kept good and the woman gained several pounds in weight during her two or three months in the hospital. The heart symptoms improved and under parathyroid treatment, phosphorus and bromids, the symptoms became much attenuated and there have been no serious ones since. If the case had been published within nine months of the operation, it would have been reported as a brilliant success from operative treatment. In some of the cases on record recurrences have been known after eight, nine or more years. Capezzuoli's general conclusions are that every case of goiter with a tendency to the exophthalmic type and evidences of a progressive course demands operative treatment without further delay unless contraindicated by advanced cachexia or heart or kidney disease or diabetes. A preliminary course of medical measures should always be tried and tried again. The heart symptoms are those that benefit most by operative measures, the exophthalmos least. Almost the main thing, however, he thinks, is to impress on the patient that the dietetic and medical restrictions will have to be kept up perseveringly after the operation as before, to ward off relapses.

81. **Osteomyeloma with Albumosuria.**—Martiri warns that the albumosuria may not appear for several months in cases of Kahler-Bozzolo disease, and it may fluctuate, so that lack of albumosuria does not disprove the diagnosis.

Cronica Medica, Lima, Peru

December, 1917, **34**, No. 654

82 *General Paralysis. C. A. Bambaren.—p. 431.

82. **General Paralysis.**—Bambaren reviews the international literature of the last few years on the subject of general paralysis, and analyzes his own experience. No benefit was observed in his own cases in which intravenous injections of neosalvarsan were systematically given. In three other cases he gave intraspinal injections of mercurialized serum, a commercial preparation. In one case the pupil reflexes returned to approximately normal, but the psychopathic symptoms persisted unmodified. The spinal cord and brain seem to feel the action of the virus at the same time as the skin, that is, in the secondary phase of the disease, probably because they all are derived from the ectoderm. Hence the necessity for examining the meningeal reaction during this stage of syphilis, bearing in mind Fournier's statement that he found lesions of the central nervous system most frequent in persons who showed no or very slight lesions during the secondary phase. The cerebrospinal fluid may show globulins, pleocytosis and positive Wassermann reaction even when the Wassermann reaction in the blood is negative. Besides these biologic signs of impregnation of the nervous system with the virus, the physical and psychic symptoms aid in the diagnosis at an early stage or permit prophylactic treatment. In every case of general paralysis, spinal treatment should be tried or the medication applied directly to the subdural space and cavity of the ventricles. Among the methods of treatment in vogue, he thinks Ogilvie's serum salvarsanized in vitro has certain advantages (The Journal, Nov. 28, 1914, p. 1936). Remissions are noted in from 25 to 35 per cent. of the cases of general paralysis treated by these various measures where formerly, according to certain authorities, they averaged only 3.9 per cent. Of course treatment must be begun early to count on favorable results.

Gaceta Medica de Caracas

Sept. 15, 1917, **24**, No. 17

83 *Staphylococcus Septicemia. R. M. Jimenez.—p. 155.

Sept. 30, 1917, **24**, No. 18

84 *Amebiasis. C. E. Salom.—p. 168.
85 Emetin in Superficial Leishmaniosis. A. da Matta.—p. 169.

83. **Staphylococcus Septicemia.**—Jimenez queries whether the tropical climate may not have been the determining factor in some cases described in which a small furuncle or acne tumor developed on the lip or nostril, and high fever set in with prostration, delirium and death within three days. He was unable to find in European records any such series of fulminating staphylococcus septicemia cases within a comparatively short period.

84. **Amebiasis.**—Salom remarks that, next to malaria, amebiasis is the most serious endemic in Venezuela. It appears in different forms in different districts but reaches its height during the warm weather and dies out as cold weather approaches. He calls attention to the third phase of amebiasis; after the intestinal and visceral phases there is liable to be a nervous stage, a polyneuritis of amebic origin. This latter phase is not mentioned in the classic descriptions, but he has known of cases in which fulminating and fatal polyneuritis developed in chronic ameba carriers. In others—who had taken emetin—the polyneuritis was peripheral and mild. It is probable that polyneuritis from this cause has sometimes been mistaken for beriberi. There is a severe epidemic of polyneuritis raging now in the mining district of Cuyuni; the diagnosis wavers between beriberi, malaria and amebic polyneuritis. Bacteriologic examination is the only means of differentiation. Emetin is the main reliance in treatment in all phases. In the polyneuritis phase he gives it subcutaneously along with strychnin, calcium and the glycerophosphates with heart tonics as needed. During the intestinal phase, he disinfects the bowels with salol or benzonaphthol in addition to the emetin subcutaneously. The diet is restricted at first to milk, tea and rice water.

Revista Medica del Rosario, Argentina

December, 1917, 7, No. 6

86 *The Viscosity of the Blood in Relation to Heart and Kidney Disease. R. A. Brandan.—p. 403.
87 Cholecystectomy for Gallstones. J. B. Abalos.—p. 434.
88 Noninfectious Elephantiasis. (Linfo-escroto.) J. Mazzini.—p. 463.
89 Prophylaxis of Tuberculosis in Argentina. C. Alvarez.—p. 472.
90 *Melanodermia plus Keratodermia in Bell Ville. C. Alvarez.—p. 485.

86. **Viscosity of the Blood as Influencing Treatment in Heart and Kidney Disease.**—Brandan presents evidence to show the importance of the viscosity of the blood as an element in the clinical picture with chronic heart and kidney disease that must be taken into account in treatment. When the arterial pressure is high and the viscosity above normal, the indications are for a purge plus venesection. The latter by withdrawing whole blood leaves a vacuum into which rushes the water retained by the diseased kidneys. This reduces at once the excessive viscosity of the blood, while the purgation carries off the excess of fluids in the body which aid in keeping the arterial tension high. On the other hand, when the tension is high and the viscosity low, purgation is indicated but venesection should be avoided, especially when there is a tendency to hemorrhages. If the arterial tension is low while the viscosity is high, purgation is dangerous, as it withdraws the water from the blood leaving it with such viscosity that the heart is unable to manage it normally. Venesection, on the contrary, is always beneficial here as, in itself alone, it promotes diuresis and paves the way for the more effectual action of digitalis. He uses a viscosimeter that compares the viscosity of the blood with that of distilled water.

90. **Regional Melanodermia plus Keratodermia.**—The heading under which this subject is treated is "The New Disease Discovered at Bell Ville." Alvarez and others demonstrated typical cases and stated that they know of about forty cases in all. The main symptoms are the dark discoloration, mostly

on the trunk, with hyperkeratosis of palms and soles, disturbances in the peripheral circulation and in some cases ascites or neuritis. Death usually occurs in two years but sometimes not for four or five years. The affection seems to be restricted to the Rosario region, and all agree that the strong arsenic content of the drinking water is probably responsible for it. Pusso found in the Bell Ville water 0.0028 gm. arsenious acid—a proportion sufficient to account for this regional chronic arsenic poisoning. Goyenechea who has been studying it for four years noticed that poultry running free and drinking rain water seemed to be normal, but poultry confined and supplied with the family drinking water had unusually fine plumage but the liver was often abnormally large and all the organs showed signs of fatty degeneration. In man, anesthesia and paralysis such as are observed with arsenical poisoning are common, and also vasomotor and trophic disturbances and local anemia in feet and hands, sometimes accompanied by intense pain. One woman with goiter and large liver, improved materially under antityphoid treatment.

Siglo Medico, Madrid

Nov. 10, 1917, 64, No. 3335

91 *Intraspinal Treatment of Syphilis of the Nervous System. E. F. Sanz.—p. 846.
92 *Angina Pectoris. C. Calleja.—p. 849. Concluded in No. 3338, p. 910.
93 Pathogenesis of Cholelithiasis. A. Medina.—p. 852.

Nov. 17, 1917, 64, No. 3336

94 Appendicectomy on Twelve Hours' Old Infant. M. Vargas.—p. 870.

91. **Intraspinal Treatment of Syphilis of the Nervous System.**—Sanz regards the use of mercurialized or salvarsanized autoserum or spinal fluid as rich in promise in treatment of tabes, general paralysis and cerebrospinal syphilis, but he warns that with the two latter affections the course is liable to have sudden ups and downs which might prove disastrous if a serious exacerbation happened to coincide with the application of this treatment. He cites from his own experience a case of general paralysis of hitherto mild course in a young woman with no other appreciable organic lesion. He proposed intraspinal treatment but she died the evening beforehand, with symptoms suggesting apoplexy. He regards this treatment as especially promising in tabes. No other treatment in this disease offers any chance of success. He always precedes this intraspinal treatment with a course of mercury and salvarsan intravenously, and he has never had any serious by-effects with tabes although he knows of such in the practice of others who are not so extremely cautious in technic and dosage as he is. In his experience with tabes, the majority of the subjective symptoms disappeared, the incoordination became more or less corrected and the general condition improved. Even the knee jerk returned permanently on both sides after the mercurialized autoserum treatment. The method seems to be undoubtedly effectual, but there is always a local reaction, pains in the lumbar region spreading to the limbs, with a dragging and other disagreeable sensations. Tabetics also shrink from having blood drawn to supply the necessary serum. The cerebrospinal fluid, it is said, does not contain enough albumin to saturate the mercury. He used mercuric chlorid, from 0.5 to 3 mg., for the injection repeating it a month later in the tabes cases, increasing from the smallest to the largest amount mentioned. He always mixed with it some of the cerebrospinal fluid just drawn, the total fluid injected being kept always less than the amount of the total spinal fluid withdrawn. In one case he treated a circumscribed lesion in the lumbar spinal cord by the intraspinal injection, and a violent reaction on the part of the meninges followed, with fatal outcome.

92. **Angina Pectoris.**—Calleja argues that the symptoms known as angina pectoris are of nervous origin, the result of some disturbance in the vegetative nervous system, causing paralysis of the muscles of expiration. Owing to this sudden paralysis, the individual is unable to expel the breath in his lungs but he keeps on inhaling, taking in deep breaths which increase the pressure in the chest and impede the circulation in the chest. Any one, he says, can induce similar painful sensations by breathing deep and holding the breath a long time. It is a neuropathy and not a cardiopathy, although the two may be associated. The primal cause is some intoxication, tobacco, alcohol, from overeating, lack of exercise, syphilis or other infectious cause. Any lesions found in the chest are casual, not causal. The immobilization of the thorax may be accompanied by high blood pressure, but he has had patients with normal pulse throughout an attack. Symptoms have been confused with causes. In the purely painful type, morphin is called for; in the type with extreme distress, amyl nitrite or trinitrin, or both in the mixed type. But the doses should be very small, not to superpose further toxic action on the nerves.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 10, 1917, 2, No. 19

95 *Spiral Incision Treatment of Varices. W. P. J. Hoogveld.—p. 1743.
96 *Prophylaxis of Contagious Diseases. H. Waller.—p. 1754.
97 Do Animals Suffer Pain? J. Roos.—p. 1756. G. van Rijnberk.—p. 1759.
98 Another Case of Splenomegaly (Gaucher). C. Ide.—p. 1761.
99 Factitious Edema of the Hand. P. H. van Roojen.—p. 1764.

95. **Spiral Incision Treatment of Varices.**—Hoogveld has recently reexamined thirteen out of nineteen patients who had been treated between 1908 and 1915 for extensive varicose veins by the Rindfleisch-Friedel method of a spiral incision. In eight of the patients both legs had been treated in this way. The outcome has confirmed that this method, notwithstanding its many drawbacks, deserves a place in treatment, especially of very extensive varices with complicating elephantiasis or leg ulcer, when simpler measures do not answer the purpose. Experience has shown that ligation of the saphena magna in the thigh should not be neglected. The number of turns of the incision depends on the extent of the lesions, the uppermost turn being made well above the upper visible enlarged veins. Primary healing of the incision is not desired; the aim is to induce the formation of a deep-reaching, solid cicatrix which, at least for some time, will prevent the vessels from becoming permeable again. None of the patients reexamined had had any disturbance from the severing of the nerves in the skin, and none were incommoded in any way by the scar. In five of the severer cases the results were most excellent. The ulcers healed and the edema and stiffness noted at first soon subsided. All had regained full earning capacity. The greater the number of turns the more effectually the desired purpose is realized. In one severe case, shown before and after, the spiral incision started above the knee and made five turns around the leg to the ankle; there is no trace of varicose enlargement to be seen on the legs now.

96. **Prophylaxis of Contagious Disease.**—Waller discusses various questions in this line saying that cattle are looked after by the state better than human beings, as there are only four medical inspectors for the whole of Holland while there are nine veterinary cattle inspectors. He queries how it can be explained that typhoid bacilli carriers cause so few infections in comparison to their number. Is it possible to distinguish between those with virulent and avirulent bacilli? He adds that during 1914 and 1915 examination of the drinking water gave constantly negative findings although typical cases of typhoid kept occurring. Contemplated legislation calls for examination of blood, urine and stools, but the patients will certainly object to having their blood drawn for epidemiologic purposes, as they derive no direct benefit from it, and as there is no specific treatment for typhoid, the physician's measures are not affected by the outcome. If the findings should happen to be negative, he might be placed in an embarrassing position. The law, Waller specifies, should make provision for suspicious as well as frank cases.

The difference in the severity of different epidemics is also to be borne in mind. Scarlet fever in Amsterdam has been so mild of late years that the aspect of the scarlet fever wards is like that of a vacation colony. In conclusion he emphasizes the difference between conditions in military and civilian life, the less close contact, the greater hardships when strict prophylactic measures are enforced, and the fact that the relations between civilian physicians and patients are not such as would justify imposing disagreeable and annoying measures. He urges that the staff of state medical officials should be enlarged and the enforcement of prophylactic measures be placed in their hands; otherwise such measures should be optional.

Hospitalstidende, Copenhagen

Dec. 6, 1917, **60**, No. 49

100 *Meningococcus Infection and Meningitis. O. Thomsen and F. Wulff.—p. 1192.

Dec. 12, 1917, **60**, No. 50

101 Durable Gieson-Hansen Preparations. K. Sand.—p. 1221.
102 Determination of Spirochetes in Syphilitic Glands. B. Pontoppidan.—1227.

100. **Meningococcus Infection and Meningitis.**—Thomsen and Wulff state that early in 1917 there were a number of cases of meningitis in the Copenhagen district which differed from the classic type of epidemic meningitis in several respects. Of the forty-two patients all died but one. The exanthem was constant and pronounced; in some it was of the classic petechial type, but in others papular, and in one case it was of the scarlatinal type. Twenty-six of the patients were soldiers or sailors, and infection from the military was known in all but eight of the civilian cases. The search for meningococci was facilitated by marking off an ascites-agar plate into squares and inoculating the squares separately, day by day. They give colored plates of the findings and a cut of a plate thus marked off into fifty-one numbered squares. As the meningococcus requires oxygen for its growth it does not proliferate in the depths of a bouillon culture. By shaking up the ascites bouillon foam forms on top, and if the blood specimen is dropped on this foam it spreads out over its surface and, as the bubbles break, it drops down on the surface of the fluid. In this way the specimen was safely sent to the laboratory where it was set aside for forty-eight hours, and then loops were transferred to freshly prepared ascites-agar. They think this foam method might be useful also with gonococci and other obligate aerobic germs. They succeeded in cultivating meningococci from the blood in three cases one day after the beginning of the sickness; in a fourth case by the third day. In one case they were cultivated directly from scarified petechiae. During these meningitis cases, nine from their environment entered the hospital with the diagnosis "influenza" on account of fever, headache and pains. They all had "sore throat," and all developed an exanthem like those of the meningitis patients except for the petechiae. The spinal fluid was always found limpid and sterile. A comparatively mild meningococcus sepsis might have been the true diagnosis in these cases. All recovered promptly and completely. Their blood from one to three weeks later responded positively to the complement fixation test with meningococci and in six cases agglutinated them.

Among the conclusions from these experiences is that the majority of cases of meningitis must be regarded as metastatic complications of a primary infection of the blood. The meningococci may not be long in the blood stream and their number may not be large, so that bacteriologic examination of the blood may not give positive findings, especially if the culture procedures do not ensure ample supply of oxygen. The data presented seem to show that the meningococci vary in virulence at different periods, and that the virulence is enhanced by repeated passages through one nasopharynx after another. This hypothesis throws light on the varying severity of the cases, the greater virulence during the seasons when people are housed most and are most subject to catarrhal affections, coughs and colds. At other seasons the meningococcus may live as a saprophyte in the nasopharynx of those who have been in contact with meningitis cases. If they develop a catarrhal condition, they disseminate the germs in speaking, coughing, etc., and the passage to another nasopharynx may enhance the virulence of the germs. This would explain the long absence of cases of meningitis in one of the barracks. Then came an epidemic of cases resembling influenza but without exanthem. Then came a number of similar cases with exanthem and this epidemic in turn was followed by the epidemic of true and severe meningitis cases. This assumption explains further why carriers so extremely rarely develop meningitis, and why chronic carriers so seldom give rise directly to meningitis cases. The passage from mouth to mouth naturally occurs more readily, the greater the crowding. In conclusion the writers refer to a forthcoming *Festbind,* to be published by the National Serum Institute in honor of C. J. Salomonsen's seventieth birthday, in which they give further details of their experience and practical conclusions as to the management of carriers and prophylactic antimeningococcus vaccination.

Hygiea, Stockholm

November 16, 1917, **79**, No. 21

103 *Intestinal Cysts. A. Hansson.—p. 1121.
104 *Prophylactic Appendectomy through Hernial Sac. L. Norrlin.—p. 1135.

103. **Intestinal Cysts.**—Hansson remarks that the correct diagnosis was not made beforehand in any of the forty-eight published cases of enterocystoma. As a rule it entails invagination. This occurred in his personal case, described with the necropsy findings. The patient was a girl of 6 who for several months had had diarrhea, sometimes with blood and slight fever. The cystoma was near the ileocecal valve. It projected into the lumen of the bowel and closely resembled Sprengel's case. The cavity of the cyst was filled with a putty-like mass. It did not open into the lumen of the bowel.

104. **Prophylactic Appendicectomy through Hernial Sac.**—Norrlin advocates removing the appendix as a prophylactic measure when operating for inguinal or femoral hernia. He has done this systematically in eighty-one cases, including two infants, 16 and 19 months old, and eleven persons over 50. All but ten were males. In all but one instance the appendix showed macroscopic changes, adhesions, stenosis, fecal concretions, etc. The microscope showed an acute inflammatory process in 25 per cent., and chronic processes in 65 per cent. of the sixty-seven cases examined with the microscope. In one case the appendix showed tubercles. His further experience has confirmed the advantages of this prophylactic procedure, which he has been advocating for five years. The healing and convalescence are the same as after simple herniotomy alone. In one woman he amputated the appendix through a left inguinal hernia. The operation was scarcely more difficult technically than with right herniotomy.

Ugeskrift for Læger, Copenhagen

Nov. 29, 1917, **79**, No. 48

105 The Milk Supply of Copenhagen during the Summer of 1917. V. Schmidt. Commenced in No. 47. (A. Bjørum and V. Poulsen.) p. 1869.
106 Sour Milk Preparations. O. Jensen.—p. 1902.
107 *Disordered Heart Action in Soldiers. E. Jarløv.—p. 1904.

107. **Disordered Heat Action in Soldiers.**—Jarløv remarks that even among the Danish soldiers—who are not on a war footing—disordered action of the heart is common, although typical objective signs of pathologic conditions are seldom found. A large proportion of these men drift into the hospitals sooner or later. Of 840 men in the military infirmary in a recent two months' period, 75 had been sent to the hospital for certain or suspected heart disease. Thorough examination was made of 45 of these; valvular defects were found only in 12; in 7 cases nothing could be found to explain the symptoms except the change from a sedentary to the army life. Eight of the men showed unstable pulse, tremor and dermographism of the suprarenal type, but excessive thyroid functioning was evident in only one instance. All the above *27* cases correspond to the typical picture of disordered heart action. Of the remaining 18, 16 of the men had pulmonary emphysema, which readily explained the heart symptoms. In some they developed for the first time under the military training. The symptoms from emphysema are readily mistaken for heart disease. A casual bronchitis may be the first clue to the real cause of the disturbances. The most serious element in the matter is the influence on the man's mind when he learns that he is supposed to have a heart defect. This is assumed to be incurable, while true heart disease exempts from service. With soldiers, therefore, in particular, one cannot be too cautious in assuming the presence of heart disease.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 70, No. 8 Chicago, Illinois February 23, 1918

THE TREATMENT OF HOOKWORM INFECTION

SAMUEL T. DARLING, M.D., M. A. BARBER, M.D.
AND
H. P. HACKER, M.D.
NEW YORK

The data that we present dealing with the therapeutics of oil of chenopodium and thymol are derived from our report to the International Health Board, Rockefeller Foundation, on the subject of the effect of hookworm infection on the working efficiency of the people of the Malay Peninsula, Java and Fiji.

On account of the importance of the subject of the treatment of hookworm infection among our soldiers at this time, the accompanying data have been abstracted from the report for immediate publication. The views here expressed are based on experiments in which the number of cases was, perhaps, too small for drawing satisfactory conclusions. So far as they compare the efficiency of various vermicides in different doses, therefore, they should be interpreted as being subject to confirmation by more extended investigation, rather than as being sufficient in themselves to establish a fact. It should be borne in mind also that the experiments we conducted were carried out in hospitals, and it may be that under less perfectly controlled conditions, such as obtain in the field, certain modifications in our recommendations would be found necessary.

Our work covered a period of about two and one half years, and included observations on the natives of the Malay Peninsula as well as Chinese and such East Indians as Tamils, Telegus, Malabaris, Pathans and Sikhs.

The research was extended to the Javanese, Malays and Chinese of the neighboring island of Java. Later, in order to make some control observations, the malaria-free island of Viti Levu, in the Fiji Archipelago, was visited, and natives, as well as indentured and free Indian coolies from Calcutta, were made the subject of investigation.

We found that among natives nearly 100 per cent. of whom had hookworm ova in their feces, the microscopic examination gave us no information as to the degree of the infection; for on treatment such people were found to harbor from one to a thousand or more hookworms. Some harbored from one to fifty hookworms without exhibiting any measurable degree of anemia; others harboring from 200 to 1,000 or more worms showed evidences of measurably severe anemia in the higher worm counts. It was necessary, therefore, to know exactly how many hookworms were being harbored, in order to compare the numbers of worms with percentages of hemoglobin, and thus ascertain the number of worms required to cause a measurable degree of anemia. To this end, large numbers of persons were treated with the most powerful vermicide at our command, so as to ascertain the total number of worms in each case.

It must be emphasized that in using a vermicide, one is employing a drug poisonous to man as well as to the worm, and the object should be to narcotize the worms and expel them together with the administered vermicide as rapidly as possible to prevent injury of the host. Special attention should be paid to insuring free purgation after the postvermicidal purge has been given. It is imperative that several stools be passed within two or three hours after the administration of this postvermicidal purge. If necessary, a second purgative dose should be given.

RELATIVE EFFICIENCY OF VARIOUS DRUGS IN REMOVING HOOKWORMS

Preliminary tests with thymol and oil of chenopodium indicated very positively that in the dosages usually recommended (thymol, 60 grains; oil of chenopodium, 48 minims, or 3 c.c.), thymol was the weaker vermicide. Our confidence in the superiority of oil of chenopodium in the earlier stages of our work was based on necropsy findings, in which we noted the number of worms found in six cases in which the patients had received the maximum dose of oil of chenopodium, 16 minims (1 c.c.) three times, and who died later of tuberculosis, dysentery, diabetes or peritonitis. The percentage of removal of worms in this small series of cases was 99.4.

We attempted to measure the relative value of vermicides by the relationship between the number of worms removed by a drug and the total number of worms present. The total number of worms was found by giving full doses of chenopodium until, as far as possible, the stools were rendered negative for ova on microscopic examination.

The experiments were carried out on batches of adult male prisoners chosen at random except for the fact that care was taken to balance the nationalities carefully and not to compare a result obtained in Chinese with a result obtained in Tamils or Malays. This precaution is necessary in view of the fact that the Chinese harbor fewer worms and a greater proportion of ancylostomes than the Tamils or Malays, in whom most of the worms are necators. Because, as is shown in our report, it is more difficult to remove ancylostomes than necators and more difficult to obtain a high percentage of worms by treatment when there are few than when there are many, it is not fair to compare results obtained in Chinese with those obtained in Tamils or Malays.

The method adopted was to administer first the remedy to be tried, and in speaking of this treatment it is useful to call it the *trial treatment.* The worms removed by this treatment were carefully collected and counted.

After this, always at an interval of at least a week, a second treatment was given of oil of chenopodium, 1 c.c. in freshly filled capsules three times at hourly intervals. This was done to test the efficacy of the previous trial treatment by discovering the number of worms left behind after that treatment. A convenient term for this treatment is the *test treatment.* After the test treatment the stools were examined for ova, and in those cases that were found positive the patients were given an *extra treatment* of oil of chenopodium, 1 c.c. three times. The stools were again examined for ova, and if necessary, further treatments were given until, as far as possible, the stools were rendered negative for ova. These examinations for ova were always made a week after the treatment was given, and in most cases more than two weeks were allowed to elapse. This procedure avoids error due to any possible latency in ova production in the early days after treatment.

The total number of worms removed was added together; the percentage of worms removed by the remedy tried in the trial treatment gives a very fair idea of the efficiency of that treatment.

TABLE 1.—VULNERABILITY OF SPECIES

	Total Worms, No.	Species				Sexes								Total Worms, by Sexes			
						Necators				Ancylostomes							
		Necators		Ancylostomes		Male		Female		Male		Female		Male		Female	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1. *Total worms to be removed*	4,553	3,998	......	555	......	2,017	.....	1,981	.....	242	.....	313	.....	2,259	49.6	2,294	50.4
2. Worms removed by:																	
First treatment	4,296	3,871	96.8	425	76.6	1,976	98.0	1,895	95.8	223	92.1	202	64.5	2,199	51.1	2,097	48.9
Second treatment	217	108	2.7	109	19.6	38	1.9	70	3.5	16	6.6	93	29.7	54	24.9	163	75.1
Third treatment	39	19	0.5	20	3.6	3	0.1	16	0.8	3	1.2	17	5.4	6	15.4	33	84.6
Fourth treatment	1	0	......	1	0.2	.....	.....	.....	.....	...	.....	1	0.3	.....	.....	1	*

* Less than one-tenth of one per cent.

The preparation of the patients for these series was uniform throughout except, of course, in the batches used for finding the effect of varying the diet and the purge in a given treatment, in which cases the dose was kept constant throughout. The preparation was as follows: The prisoners had their ordinary morning meal at 11 a. m.; but at the afternoon meal, usually served at 3 p. m., kunji, or soft rice gruel, was given. At 4 p. m., 2 ounces of a concentrated solution of magnesium sulphate was given as a purge. This contains practically 1 ounce of the salt.

Next morning they had milk instead of their ordinary meal, and were given the treatment. The last dose of medicine was followed after an hour's interval by a second purge of magnesium sulphate, and then they were kept away from work and were locked up in the cells except when let out for exercise.

The stools were collected at 2 p. m. on the day of the treatment and at 7 a. m. and 2 p. m. on the following two days. The stools were washed and examined for worms till the end of seventy-two hours, which usually gave six stools per patient.

At the end of forty-eight hours, those patients who had two consecutive stools with no worms in them were released, provided that in every case at least four stools had been washed and examined. When prisoners had no stools at a washing, they were given another saline purge.

DIFFERENCE IN VULNERABILITY OF SPECIES TO CHENOPODIUM

This was studied from the combined results of series in which oil of chenopodium was used as the vermicide (Table 1). It is seen that 96.8 per cent. of all necators present were removed by the first treatment, as compared with 76.6 per cent. of all ancylostomes. This shows that necators are less resistant than ancylostomes to a given dose of vermicide. The resistance of both species of worms increases with the size of the worm.

The species formula or proportion of *Ancylostoma duodenale* to *Necator* varies in different classes of persons. In the Southern States, *Necator americanus,* according to Dr. Stiles, is the species always encountered.

With Japanese, Chinese, North Indians, West Indians, etc., the percentage of *A. duodenale* to the total number of worms harbored runs up to 90 per cent. plus or minus. In Java two ethnic stocks long resident on the island had markedly different species formulas.

COMPARISON OF THE EFFICIENCY OF VARIOUS VERMICIDES

In this series the comparison was made with four commonly used vermicides (Table 2). The quantity of oil of chenopodium was always measured by a graduated pipet, not by drop.

TABLE 2.—EFFICIENCY OF VARIOUS VERMICIDES

Treatment	Valid Cases No.	Worms Removed by First or Trial Treatment, Per Cent.
Betanaphthol, 20 grains, in capsules, two doses with two hours' interval	10	26.7
Eucalyptus, 30 minims, chloroform, 45 minims, and castor oil to 12 drams, divided into two doses of 6 drams each and given with two hours' interval.	10	46.9
Thymol, 30 grains, in emulsion, two doses with two hours' interval	10	88.6
Oil of chenopodium, 1 c.c., in capsules, two doses with two hours' interval	8	96.15

Comment.—In the comparison of drugs chosen and given in medium doses, oil of chenopodium appears to be the most efficient.

COMPARISON OF THE EFFICIENCY OF OIL OF CHENOPODIUM IN VARIOUS DOSES

The following treatments were carried out on Chinese, and the preparation of the patients was uniform throughout (Table 3):

1. One c.c. three times at hourly intervals, or 3 c.c. in freshly filled capsules.
2. One c.c. twice with two hours' interval, or 2 c.c. in freshly filled capsules.
3. Two c.c. once, or 2 c.c. in freshly filled capsules.
4. Five-tenths c.c. three times at hourly intervals, or 1.5 c.c. in freshly filled capsules.
5. Five-tenths c.c. three times at hourly intervals, or 1.5 c.c. in one-half ounce of liquid petrolatum.
6. Twenty-five hundredths c.c. three times at hourly intervals, or 0.75 c.c. in freshly filled capsules.
7. Ten minims, or just over 0.5 c.c., in X's soft gelatin capsules.
8. Five-tenths c.c. of oil of chenopodium extracted from X's soft gelatin capsules.

Comment.—1. The relative inefficiency of X's soft gelatin capsules of oil of chenopodium is well shown in the seventh batch of this series, in which all the patients received exactly the same diet and previous purgation. That the thick walled soft gelatin capsules were at fault is proved by the results of the eighth group, which received the oil of chenopodium removed from the manufactured soft capsules and administered in freshly filled, hard gelatin capsules and in which the percentage of worms obtained was very good. In Group 7, the soft capsules dissolved too slowly to permit their contents to affect the hookworms distributed in the duodenum and the upper part of the jejunum.

2. The dosage used in our treatment with maximum doses is shown to be very effective, as it expelled 98.9 per cent. of the worms.

3. The treatment by 2 c.c. in one dose was an attempt to decide whether the tedious division of the treatment into three doses was really necessary. The first ten cases were so successful that fifteen other cases were taken to confirm or confute the result.

TABLE 3.—EFFICIENCY OF OIL OF CHENOPODIUM IN VARIOUS DOSAGES

Treatment	Valid Cases No.	Worms Removed by Trial Treatment, Per Cent.
1. Oil of chenopodium, 1 c.c., in capsules; three doses at hourly intervals, or 3 c.c.	17	98.9
2. Oil of chenopodium, 1 c.c., in capsules; two doses with two hours' interval, or 2 c.c.	8	96.15
3. Oil of chenopodium, 2 c.c., in capsules; one dose only, or 2 c.c.	25	95.8
4. Oil of chenopodium, 0.5 c.c., in capsules; three doses at hourly intervals, or 1.5 c.c.	9	95.4
5. Oil of chenopodium, 0.5 c.c., in liquid petrolatum, ½ ounce; three doses at hourly intervals, or 1.5 c.c.	10	88.7
6. Oil of chenopodium, 0.25 c.c. in capsules; three doses at hourly intervals, or 0.75 c.c.	10	80
7. Oil of chenopodium, 10 minims, or just over 0.5 c.c., in X's gelatin capsules; three doses at hourly intervals, or 30 minims	10	66.4
8. Oil of chenopodium extracted from X's gelatin capsules, 0.5 c.c., in freshly filled capsules; three doses at hourly intervals, or 1.5 c.c.	4	97.9

The final result of the single dose treatment (two thirds of the maximum dose) is highly creditable, with 95.8 per cent. removal of worms. It raises the question as to whether the troublesome repetition of doses is really worth while.

There were only three cases of vomiting, and only two cases of "disinclination to stand up" after the treatment.

4. The group that received only half the maximum treatment lost 95.4 per cent. of their worms, and it was thought advisable to ascertain whether a second half dose treatment would remove most of the remaining 5 per cent. of [illegible] less toxic effect and less vomiting by this method of treatment.

Accordingly, a third series of treatments was carried out, in which two half-dose treatments of chenopodium were compared with two treatments of thymol in various forms (Table 4).

COMPARISON OF TREATMENTS WITH OIL OF CHENOPODIUM AND WITH THYMOL

The following treatments were given twice, followed by a test treatment of oil of chenopodium, and the results obtained were compared:

1. Oil of chenopodium, 0.5 c.c., in capsules; three doses at hourly intervals.
2. Thymol, 20 grains, very fine powder, in capsules; two doses with two hours' interval.
3. Thymol, 20 grains, very fine powder, in capsules, with lactose, 20 grains; two doses at two hours' interval.
4. Thymol, 20 grains, ground to fine powder; two doses at two hours' interval.
5. Thymol, 20 grains, and lactose, 20 grains, in powder; two doses at two hours' interval.

TABLE 4.—COMPARISON OF TWO TREATMENTS OF HALF THE DOSE OF OIL OF CHENOPODIUM WITH TWO TREATMENTS OF THYMOL IN VARIOUS FORMS

Treatment	Valid Cases No.	Worms Removed by Both Trial Treatments, Per Cent.
1. Two treatments of oil of chenopodium, 0.5 c.c., in capsules, three times at hourly intervals	39	99.03
2. Two treatments of thymol in capsules, 20 grains twice with two hours' interval	23	83.4
3. Two treatments of thymol, 20 grains, in capsules with lactose, 20 grains; two doses with two hours' interval	10	79.4
4. Two treatments of thymol, 20 grains, ground to fine powder; twice with two hours' interval.	10	80.6
5. Two treatments of thymol, 20 grains, and lactose, 20 grains, ground to fine powder; two doses with two hours' interval	18	84.4

Comment.—In this treatment also, the superiority of oil of chenopodium over thymol in the doses given is well shown in that it removed 99 per cent. of the worms, while thymol removed about 80 per cent.

2. There seems very little to choose between giving thymol as a powder or in a capsule, and between combining it with sugar or giving it alone.

A. There is, however, a slight advantage in giving it as a powder, thus:

Thymol alone in capsule, 83.4 per cent. worms.
Thymol alone in powder, 80.6 per cent. worms.
Thymol with sugar in capsule, 79.4 per cent. worms.
Thymol, finely divided, with sugar in powder, 84.4 per cent. worms.

B. There is also a slight advantage apparent in combining it with lactose, thus:

Thymol in capsule alone, 83.4 per cent. worms.
Thymol in capsule with sugar, 79.4 per cent. worms.
Thymol in powder alone, 80.6 per cent. worms.
Thymol in powder with sugar, finely divided, 84.4 per cent. worms.

In another series of cases, larger doses of thymol were tried. Only one full test treatment of oil of chenopodium was given, and the stools were not examined for ova. Therefore, the percentage of worms removed will be a little higher when compared with the other series.

The dosages tried were:

Thymol, 30 grains, in powder, three times at hourly intervals, or 90 grains.
Thymol, 40 grains, in powder, three times at hourly intervals, or 120 grains.
Thymol, 1 dram, in powder, three times at hourly intervals, [illegible] 180 grains.

It will be seen from Table 5 that the 90 grain dosage gives a very good result, which is practically equal to the result obtained by the routine oil of chenopodium treatment.

We have shown that: Two treatments of 40 grains removed about 80 per cent. of the worms; the 60 grain dosage removed 88.6 per cent., and the 90 grain dosage removed 97.8 per cent. There is, therefore, a gradual improvement in efficiency with increase of the dose up to the 90 grain dosage. When the dose is increased beyond this, there is no improvement.

TABLE 5.—COMPARISON OF SUMMARIES OF TREATMENTS WITH THE HIGHER DOSE OF THYMOL

Dosage	Valid Cases No.	Worms Removed by Treatment, Per Cent.
Thymol, 30 grains, in powder, three times, or 90 grains	19	97.8
Thymol, 40 grains, in powder, three times, or 120 grains	19	54.2
Thymol, 1 dram, in powder, three times, or 180 grains	9	96.5

In Table 6, data are given comparing the vomiting that occurred in the thymol series with that which occurred in the chenopodium series.

TABLE 6.—INCIDENCE OF VOMITING AND THE EFFECT OF THAT VOMITING ON THE PERCENTAGE OF WORMS REMOVED

	Thymol	Oil of Chenopodium
Dose given	20 grains twice, or 40 grains	0.25 c.c. 3 times, or 0.75 c.c.
Number of cases	65	10
Number of patients that vomited	4, or 6.2%	None
Percentage of worms removed—		
(a) In patients that vomited	78.5%	No cases
(b) In patients that did not vomit	78.5%	80%
Dose given	30 grains twice, or 60 grains	0.5 c.c. 3 times, or 1.5 c.c.
Number of cases	10	49
Number of patients that vomited	None	6, or 12.3%
Percentage of worms removed—		
(a) In patients that vomited	No Cases	98.6%
(b) In patients that did not vomit	88.6%	94.3%
Dose given	30 grains 3 times, or 90 grains	1 c.c. 3 times, or 3 c.c.
Number of cases	19	20
Number of patients that vomited	3, or 15.8%	3, or 15%
Percentage of worms removed—		
(a) In patients that vomited	97.9%	100%
(b) In patients that did not vomit	97.8%	98.9%
Dose given	40 grains 3 times, or 120 grains	No higher doses given
Number of cases	19	
Number of patients that vomited	11, or 57.9%	
Percentage of worms removed—		
(a) In patients that vomited	44.3%	
(b) In patients that did not vomit	90.6%	
Dose given	1 dram 3 times, or 180 grains	No higher doses given
Number of cases	10	
Number of patients that vomited	5, or 50%	
Percentage of worms removed—		
(a) In patients that vomited	93.2%	
(b) In patients that did not vomit	97.0%	

Rate of Fall in Efficiency When the Dose Is Diminished.—The efficiency of the maximum dose in the two drugs is practically equal; but when the dose is reduced, the efficiency is better maintained with oil of chenopodium than it is with thymol. This is shown in Table 7.

Thus, though both drugs produce about the same effect in their maximum dose, the half maximum dose of oil of chenopodium is superior to the two thirds maximum dose of thymol, especially in its effect on the ancylostomes, whereas, the quarter maximum dose of oil of chenopodium is markedly superior to the four ninths maximum dose of thymol.

The greater range of dosage with a satisfactory efficiency is a definite fact in favor of oil of chenopodium, and makes it preferable to thymol as a drug to be given to children.

The Efficiency as Tested by the More Resistant Form of Worm.—The effect of the two drugs on ancylostomes is an important point in relation to their relative value, as this species of worm has been shown to be more resistant than necators to the action of vermicides.

TABLE 7.—EFFICIENCY OF OIL OF CHENOPODIUM AND OF THYMOL WHEN THE DOSE IS REDUCED

	Effect on Necators		Effect on Ancylostomes	
Dosage	Removed by Thymol Per Cent.	Removed by Oil of Chenopodium Per Cent.	Removed by Thymol Per Cent.	Removed by Oil of Chenopodium Per Cent.
Maximum dose	98.3	99.5	93.5	96.2
Two-thirds maximum dose	95.7	....	57.9	....
One-half maximum dose	....	97.2	....	80.1
Four-ninths maximum dose	76.0	....	30.1	....
One-quarter maximum dose	....	88.3	....	63.4

In the results given in Table 8, it is to be seen that the difference between the efficiency of the two drugs is much less in the case of the less resistant necators than in the case of the more resistant ancylostomes.

From this one may conclude that oil of chenopodium *is more effective than thymol on the more resistant* form of worm.

This is of importance when there is a high percentage of ancylostomes to be treated. For instance, in Tamils, in whom the ancylostomes are relatively few, thymol would be almost as efficient as oil of chenopodium; but in Chinese, West Indians, or North Indians, or others with a high percentage of ancylostomes, oil of chenopodium should be more useful in removing worms.

Relative Failure of the Treatment.—This is an important piece of evidence to consider in comparing the value of two drugs; for if one is more constant in its action than the other, it would be a point in favor of using that drug for general routine treatment. In choosing cases to be regarded as showing relative failure of a treatment, those which yielded 10 per cent. fewer of their worms than the average obtained in that treatment were selected, provided no vomiting had occurred.

TABLE 8.—EFFICIENCY AS TESTED BY THE MORE RESISTANT FORM OF WORM

	Superiority in Efficiency of Oil of Chenopodium	
Dose	In Necators Per Cent.	In Ancylostomes Per Cent.
3 c.c. of oil of chenopodium v. 90 grains of thymol	1.2	2.7
1.5 c.c. oil of chenopodium v. 60 grains of thymol	1.5	22.2
0.75 c.c. of oil of chenopodium v. 40 grains of thymol	12.3	33.3

On this standard, 23.6 per cent of the 123 patients treated with thymol and only 7.6 per cent. of the seventy-nine patients treated with oil of chenopodium were classed as relative failures in treatment. This result is to be expected when one considers that a relatively insoluble powder is being compared with a penetrating oil, which would spread more readily than the powder throughout the intestine.

Effect of Two Treatments of Smaller Dosage Than the Maximum.—The following results show the efficiency obtained by giving two treatments of relatively small dosage:

Thymol: Two treatments of 40 grains:

Effect on necators: 2,680 removed out of 3,173, or 84.5 per cent.

Effect on ancylostomes: 96 removed out of 196, or 49 per cent.

Oil of chenopodium: Two treatments of 1.5 c.c.:
Effect on necators: 2,091 removed out of 2,099, or 99.6 per cent.
Effect on ancylostomes: 153 removed out of 167, or 97.5 per cent.

It is to be noted that the second treatment in the case of the thymol does not markedly increase the efficiency, which is still below that obtained by one dose of 60 grains of thymol.

On the other hand, the result of the two treatments with half the maximum dose of oil of chenopodium is seen to be better than that obtained with one full dose. This confirms the fact, previously noted, that small doses of oil of chenopodium are relatively more efficient than small doses of thymol.

It is of great importance also in showing that the best results may be obtained by giving two treatments of only half the maximum dose of oil of chenopodium. As the toxic effects of the drug would be practically negligible with the half dose, this is a great advantage in favor of oil of chenopodium.

Ease of Administration.—In both cases the drug must be freshly prepared for each treatment.

In the case of oil of chenopodium, the manufactured soft capsules were shown to be markedly inferior in their action to the freshly filled gelatin capsules. Thymol is a relatively insoluble solid, and in order to produce an even distribution of the drug in the intestine, it must be in a fine state of subdivision. To bring this about, the thymol must be freshly ground to a powder; if it is prepared some days before the treatment, it coheres into lumps. The admixture of an equal bulk of lactose enhances the efficiency of thymol.

An interesting illustration of the advantage, as a vermicide, of a diffusible liquid over a relatively insoluble solid is the fact that better results were obtained with thymol in the form of an emulsion than in the form of a powder, whereas with chenopodium, better results were obtained with the oil itself than with an emulsion of chenopodium.

Preference from the Patient's Point of View.—Fifty-eight patients, including both Tamils and Chinese that had received a thymol treatment followed by a chenopodium treatment, were asked individually after the second treatment which drug they preferred. Only two of these preferred thymol, while one refused to give his opinion and said that each was as bad as it could be. This expression of opinion was made in spite of the fact that the memory of the thymol treatment had had a week's time to fade, while the memory of the chenopodium was more recent.

This experiment was controlled to a slight extent in a series of four cases in which oil of chenopodium was given first and was followed by thymol. They all voted for the previous treatment of chenopodium as being more pleasant to take.

AFTER-EFFECTS OF TREATMENT BY CHENOPODIUM AND THYMOL

The minor after-effects are mainly subjective, and are very difficult to gage. They are only imperfectly susceptible of mathematical estimation. The general impressions from notes on a considerable number of cases treated with thymol and with oil of chenopodium are, however, compared in the summary given in Table 9. The symptoms are recorded in the order of their frequency and importance.

Dizziness, termed by the patients *pusing kapala*, or "turning of the head," was the most frequent complaint.

A semicomatose state was encountered not at all in the thymol cases and only rarely in the chenopodium series. The patients could not be roused to pay any attention to their surroundings. The pulse remained good; the blood pressure was taken in some of the cases, and was found normal. The effect, therefore, is probably a narcosis acting on the central nervous system, and is not cardiac in origin.

Tingling of the hands and feet was complained of only by the more intelligent patients. A few European patients mentioned this symptom, and the natives used the phrase *jalan darah;* that is to say, they felt the blood moving.

Streaks of blood in the vomit were occasionally noted. They were probably due to the strain of vomiting, whether thymol or oil of chenopodium was used. One case of bleeding from the nose after vomiting was seen.

Except with the 60 grain dose of thymol, which was administered to a group so much smaller than those receiving 40 or 90 grains that the results with the three doses are not strictly comparable, we see that *vomiting,* practically speaking, increases with the amount of drug given. In the chenopodium series, vomiting occurs in only 15 per cent. of the cases in the highest dosage given, that is, 3 c.c. The vomiting that occurs does not affect the efficiency of the treatment, for as Table 6 has shown, the patients that vomited showed as high a percentage of worms removed as the patients that did not vomit. In the thymol series also, up to the 90 grain dose, in which treatment 15.8 per cent. of the patients vomited, the patients that vomited showed the same percentage of worms removed as the patients that did not vomit. When 120 grains were given, the vomiting showed a sudden increase in incidence up to 57.9 per cent. of the cases. Those that vomited gave up only 44.3 per cent. of the worms, as compared with 90.6 per cent. in the patients that did not vomit. This shows that the limit of tolerance to the drug was exceeded, and the vomiting became severe and prompt enough to cause a considerable loss of the drug administered. The high percentage of worms removed after the 180 grain dose of thymol, in which 50 per cent. of the patients vomited, may be explained by the fact that although the patients who vomited gave up a considerable amount of the drug, the amount retained was nevertheless sufficient to effect a very satisfactory removal of worms.

The limit of tolerance was not reached in the chenopodium series, but it is probable that it would have been if slightly higher doses had been given.

This shows that by increasing the dosage of thymol it is not probable that one would be able to get better results than were obtained by the 3 c.c. dosage of oil of chenopodium.

In the treatments among another series of patients, however, the limit of tolerance for oil of chenopodium was reached at the dosage of 15 minims three times, or 2.8 c.c. Better results were obtained among these patients with the lower dosage of 10 minims three times, or 1.8 c.c. A series of nine patients treated with this dosage showed only 11.1 per cent. of vomiting, and yielded 98.9 per cent. of the worms.

A series of thirty-two cases in which no vomiting occurred in the second treatment is available for comparing the effects of the first treatments. On the first treatment fifteen of these patients, or 46.9 per cent., vomited, and yielded 93.1 per cent. of the worms; while seventeen of them, or 53.1 per cent., did not vomit, and yielded 96.3 per cent. of the worms.

The albuminuria which occurred with oil of chenopodium was by no means always renal in origin, as this drug seems to have an action in accentuating a latent gonorrhea similar to that possessed by oil of copaiba. In determining the presence of albumin, only the heat test was used, as the cold nitric acid test gives a ring of "oleoresin" in most patients that have been treated with chenopodium. The urine was examined before treatment and on the day after treatment, and only cases without albumin before treatment are included in the figures given. In no less than four cases, the trace of albumin was found to be associated with spermatozoa. These cases were rejected as not being due to the drug.

TABLE 9.—COMPARISON OF EFFECTS NOTED AFTER TREATMENT WITH THYMOL AND WITH OIL OF CHENOPODIUM[*]

<table>
<tr><th>Symptom</th><th colspan="7">After Thymol</th><th colspan="7">After Oil of Chenopodium</th></tr>
<tr><td>1. Dizziness</td><td colspan="7">Frequently noted</td><td colspan="7">More common</td></tr>
<tr><td>2. Muscular incoordination</td><td colspan="7">Noted</td><td colspan="7">More marked</td></tr>
<tr><td>3. Inability to rise</td><td colspan="7">Noted</td><td colspan="7">Much more frequent</td></tr>
<tr><td>4. Semicomatose state (further stage of 2 and 3)</td><td colspan="7">Not noted</td><td colspan="7">Only rarely noted</td></tr>
<tr><td>5. Burning in stomach</td><td colspan="7">Much more marked</td><td colspan="7">Noted</td></tr>
<tr><td>6. Headache</td><td colspan="7">More marked</td><td colspan="7">Noted</td></tr>
<tr><td>7. Tingling of the hands and feet</td><td colspan="7">None</td><td colspan="7">Noted</td></tr>
<tr><td rowspan="3">8. Vomiting</td><td colspan="2">Dose, Gr.</td><td colspan="2">Cases Treated</td><td colspan="2">Cases Vomited</td><td>Per Cent. Vomited</td><td colspan="2">Dose, C.c.</td><td colspan="2">Cases Treated</td><td colspan="2">Cases Vomited</td><td>Per Cent. Vomited</td></tr>
<tr><td colspan="2">40
60
90
120
180</td><td colspan="2">65
10
19
19
10</td><td colspan="2">4
0
3
11
5</td><td>6.2
0.0
15.8
57.9
50.0</td><td colspan="2">0.75
1.5
3.0</td><td colspan="2">10
49
20</td><td colspan="2">0
6
3</td><td>0.0
12.3
15.0</td></tr>
<tr><td colspan="2">Total.......</td><td colspan="2">123</td><td colspan="2">23</td><td>18.7[†]</td><td colspan="2">Total.......</td><td colspan="2">79</td><td colspan="2">9</td><td>11.4[†]</td></tr>
<tr><td rowspan="3">9. Albuminuria</td><td rowspan="2">Dose, Gr.</td><td rowspan="2">Examined</td><td rowspan="2">Positive</td><td rowspan="2">Per Cent. Positive</td><td colspan="3">Origin</td><td rowspan="2">Dose, C.c.</td><td rowspan="2">Examined</td><td rowspan="2">Positive</td><td rowspan="2">Per Cent. Positive</td><td colspan="3">Origin</td></tr>
<tr><td>Renal</td><td>Gonorrheal</td><td>Not Diagnosed</td><td>Renal</td><td>Gonorrheal</td><td>Not Diagnosed</td></tr>
<tr><td>40</td><td>50</td><td>6</td><td>12</td><td>2</td><td>..</td><td>4</td><td>1.5
3.0</td><td>52
39</td><td>7
8</td><td>13.5
20.5</td><td>..
1</td><td>..
4</td><td>7
3</td></tr>
<tr><td rowspan="3">10. Deafness</td><td colspan="7" rowspan="3">Not noted</td><td colspan="2" rowspan="2">Dose, C.c.</td><td colspan="2" rowspan="2">Total Number Treatments</td><td colspan="3">Cases of Deafness</td></tr>
<tr><td colspan="2">Number</td><td>Per Cent.</td></tr>
<tr><td colspan="2">1.5
3.0</td><td colspan="2">000
446</td><td colspan="2">0
5</td><td>0.0
1.3</td></tr>
<tr><td>11. Death</td><td colspan="7">None</td><td colspan="7">Two, after two treatments of 3 c.c., administered with an interval of only four days between</td></tr>
</table>

[*] Figures cover 123 cases treated with thymol in doses ranging from 40 to 180 grains, and 79 cases treated with oil of chenopodium in doses ranging from 0.75 to 3.0 c.c.

[†] The higher percentage of total cases with vomiting after thymol than after oil of chenopodium may be attributed mainly to the administration to twenty-nine patients, in the case of thymol, of doses that exceeded the limit of tolerance.

The 40 grain dosage of thymol produces very nearly the same amount of albuminuria as the half dose of oil of chenopodium.

In both series, a substance which reduces Fehling's solution was frequently demonstrated, showing that absorption and excretion in the urine occurred with both drugs. This fact is shown also by the detection of oleoresins in the case of oil of chenopodium, and by the dark colored urine and purplish black color obtained with ferric chlorid and sulphuric acid in the case of thymol.

Deafness occurred only after the high dose (3 c.c.) of oil of chenopodium, and usually only after the second treatment. It was seen in five cases out of 446 treatments, or in 1.3 per cent. of the cases. The deafness that did occur was slight and very transient in most cases, but one patient is known to have remained somewhat deaf for three months. It was always of the nerve deafness type.

Death.—In two cases a state of deep and prolonged coma ensued, ending in death after two or three days. This occurred after the second full treatment of oil of chenopodium, and when the second treatment followed within four days of the first. We found that chenopodium was still detected in the urine up to at least 126 hours after its administration, and it is quite possible that the second dose may have a cumulative action if it is given within this limit. At least a week should certainly elapse between the two treatments.

Both deaths occurred within ten days of each other at a time when it seemed necessary to expedite the work by giving two treatments within a week. After these two deaths, the period between treatments was lengthened, with the result that although many hundreds of treatments were given subsequently to persons of all ages and conditions, no other serious or fatal incident occurred.

INFLUENCE OF THE PURGE

In one of the institutions, the language difficulties were great; and as we desired to ascertain by personal inspection rather than by interrogation the effect of chenopodium as influenced by the purge, we divided the squads of men into halves. Those on one side of the ward were given magnesium sulphate; those on the other side were given castor oil. The castor oil squad always showed the greater number of cases of dizziness and deafness; most of the cases of inability to rise and walk occurred is this group.

The urine of patients taking castor oil contained much heavier precipitates when tested for oleoresin than those that had taken magnesium sulphate.

Dizziness and muscular incoordination were less with magnesium sulphate than with castor oil, compound mixture of senna or calomel.

EFFECT OF VARYING THE DIET AND OF OMITTING THE FIRST PURGATIVE DOSE

In this series the same dose of oil of chenopodium was given in all cases, but a different scale of diet was given to each group of ten patients, all of whom were Chinese. Each group was subdivided into five patients, one half receiving a previous purge and the other half receiving no purge before treatment. All patients got the purge following the chenopodium treatment.

In this way we have two series of results to compare, (*a*) with purge and (*b*) without purge in each of the following groups:

Diet 1: Full diet all through the treatment.

Diet 2: Full diet all the day previous to treatment, but milk on the morning of treatment.

Diet 3: Rice gruel (*kunji*) on afternoon of the day previous to treatment, but milk on the morning of treatment.

Diet 4: Only milk during the day previous to treatment, and only milk on the morning of treatment.

It will be seen that Diet 3 is the one that was used in routine preparation for treatment, and Diet 4 approaches a little more toward a condition of starvation than that which was used in the preparation of cases. The results are shown in Table 10.

TABLE 10.—EFFECT OF VARYING THE DIET AND OF OMITTING THE FIRST PURGATIVE DOSE ON THE RESULT OBTAINED WITH OIL OF CHENOPODIUM

Diet Used	With Purge: Valid Cases, No.	With Purge: Worms Removed, Per Cent.	Without Purge: Valid Cases, No.	Without Purge: Worms Removed, Per Cent.
Diet 1: Full diet all through the treatment	5	44.5	5	57.1
Diet 2: Full diet all the day previous to treatment, but milk on the morning of treatment	4	88.7	4	87.5
Diet 3: Rice gruel (kunji) on the afternoon previous to treatment, but milk on the morning of treatment	4	92	5	95.7
Diet 4: Only milk during the day previous to treatment, and only milk on the morning of treatment	12	78.7	14	56.3

Comment.—There is a steady increase in the percentage of worms removed with the increase in amount of deprivation up to Diet 3, or the diet used in the routine preparation of cases. When the starvation is increased beyond this, a remarkable drop in the percentage of worms removed was noted.

Another group of twenty patients was treated with the extra deprivation Diet 4, and the drop in efficiency was confirmed.

The omission of the initial purge did not seem to have any effect in lowering the efficacy of oil of chenopodium except in Diet 4. The preliminary purge, therefore, may be omitted under certain circumstances.

INVESTIGATION OF THE MODE OF ACTION OF EUCALYPTUS AND CHLOROFORM

For this purpose, one group of patients was given eucalyptus in castor oil only, and a third group was given the combined treatment. The fourth group was given first a treatment of eucalyptus and then a treatment of chloroform, and the worms obtained in each treatment were compared (Table 11).

TABLE 11.—MODE OF ACTION OF EUCALYPTUS AND CHLOROFORM

Treatment	Valid Cases No.	Worms Removed by Trial Treatment, Per Cent.
1. Eucalyptus	7	0
2. Chloroform	8	30.0
3. Eucalyptus and chloroform	10	46.9
4. First trial treatment: Eucalyptus	8	2.7
5. Second trial treatment: Chloroform	8	49.3

Comment.—1. Eucalyptus ranks very low indeed as a vermicide.

2. The greater part of the effect of the combined treatment is due to the chloroform.

3. On the other hand, although eucalyptus does not remove worms to any extent, it seems to aid chloroform in its action, thus:

Chloroform by itself brought away 30 per cent. of worms.

Chloroform combined with eucalyptus removed 46.9 per cent. of worms.

Chloroform preceded by eucalyptus removed 49.3 per cent. of worms.

In another series, oil of chenopodium was administered with chloroform, castor oil and mucilage acacia, the dosage of oil of chenopodium being 30 minims in one series, and 40 minims in another. During the earlier treatments in this series, excellent results were obtained; but severe vomiting in certain of the cases considerably reduced the percentages of worms removed in the total cases ; this, it was thought, was probably due to the effect of chloroform, so that while the vermicidal powers of chenopodium may be enhanced by chloroform, the increased amount of vomiting renders the combination less efficient.

ADMINISTRATION OF CHENOPODIUM

We have shown elsewhere that the soft gelatin capsules supplied in sealed tins by certain manufacturers were relatively inefficient, and we recommend that the oil of chenopodium be administered in hard, dry gelatin capsules, filled a few hours before use.

TABLE 12.—COMPARATIVE COST OF THYMOL AND CHENOPODIUM *

Thymol	Cost	Removal of Worms Efficiency Per Cent.	Oil of Chenopodium c.c.	Cost	Removal of Worms Efficiency Per Cent.
40 grains	$0.06	73.3	0.75	$0.014	80.0
60 grains	0.09	88.6	1.5	0.027	95.7
90 grains	0.135	97.8	3	0.055	98.9

*Calculated at thymol, 0.15 cents per grain, and oil of chenopodium, 1.24 cents per cubic centimeter.

EFFECT OF CHENOPODIUM AND THYMOL ON WORMS OTHER THAN HOOKWORMS

Chenopodium is relatively just as efficacious in removing *Ascaris, Clonorchis* and *Taenia.* Even *Oxyuris* and *Trichuris,* which normally live in the appendix, cecum and large bowel, yielded to this drug. In two series of treatments the effect of thymol and oil of chenopodium in removing ascarides was ascertained by giving trial doses of thymol, and test doses of oil of chenopodium. When thymol in 45 grain doses was given, only 20 per cent. of the ascarides present were removed, and when 90 grains of thymol were administered the percentage was 32.7. In Java, the average number of ascarides per individual was in men 9.1, boys 12.4, women 13.7, and girls 25.0. The more powerful drug is required there to remove the large numbers of ascarides harbored.

TABLE 13.—SUMMARY OF COMPARISON OF THE VALUE OF THYMOL AND OIL OF CHENOPODIUM

Thymol	Oil of Chenopodium
1. The 90 grain dose produces a very satisfactory removal of worms.	1. Three c.c. produced the largest vermifugal effect of any single treatment tried, but the result is only slightly superior to the corresponding dose of thymol.
2. Higher doses, for example 120 grains, removed fewer worms because the vomiting that occurred reduced the amount of drug retained in the stomach to below the amount required for efficient removal of worms; but with 180 grains, though much vomiting occurred, the amount of the drug retained was still sufficient to effect a satisfactory removal of worms.	2. The dose at which the vomiting causes loss of efficiency was not reached at one institution, although 3 c.c. were given. At another, 46.9 per cent. of vomiting occurred with loss of efficiency at the 15 minims three times, or 2.8 c.c. dosage.
3. No serious toxic symptoms were noted even with the highest dose.	3. The highest dose (i. e., 3 c.c.) occasionally produced toxic effects on the nervous system, such as nerve deafness and coma.
4. No serious toxic symptoms were noted even with the highest dose.	4. In the lower doses, 1.5 c.c. and under, no deafness or coma occurred.
5. Diminution of the dosage produced a rapid falling off of efficiency.	5. The efficiency was well maintained when the dose was reduced even down to a quarter of the maximum dose.
6. Two treatments with a small dose did not produce a good summation in the results.	6. Two half maximum doses produced a better result than the full maximum dose, and the highest percentage of worms removed was obtained by this treatment, i. e., 99.6 per cent. of necators and 97.5 per cent. of ancylostomes.
7. Thymol was voted, by a great majority of the patients treated, as more unpleasant to take than oil of chenopodium.	
8. The comparisons made under 5, 6 and 7 render thymol less suitable for use in the treatment of children than oil of chenopodium, as for children the smaller doses would be required.	
9. The effect on the more resistant forms of worm has been shown to be less, dose for dose, with thymol than with oil of chenopodium.	
	10. This renders chenopodium as the drug for choice in treating Chinese, West Indians or any other people with a high percentage of ancylostomes.
11. Thymol, being a relatively insoluble powder, has less opportunity than chenopodium of becoming uniformly distributed throughout the intestinal contents.	11. Chenopodium, being a thin oil, will become more evenly diffused along the intestine.
12. Based on Consideration 11, the action of thymol was less uniform than chenopodium, and showed 23.6 per cent. of cases in which relative failure of the treatment occurred.	12. Only 7.6 per cent. of the patients treated with chenopodium showed relative failure of the treatment.
13. Thymol removes a proportion of the worms of species other than hookworms.	13. Oil of chenopodium has been shown to be more effective in removing all the other species than thymol.

CONCLUSIONS

It would appear from the comparisons given in Table 13 that the half maximum dose (0.5 c.c. three times, or 1.5 c.c.) of oil of chenopodium is the treatment for recommendation as a routine vermicide.

It does not have the toxic effects of the full dose, and two treatments have the very satisfactory result of removing 99 per cent. of all worms present.

It has the additional advantage of a more uniform action, a greater effect on ancylostomes, and of being less unpleasant to take than thymol.

Thymol shows an advantage over this half maximum dose of oil of chenopodium in that, without producing toxic effects, the 90 grains' dosage produces a better result when single treatments are compared. This advantage disappears, however, when two half maximum treatments of oil of chenopodium are given.

Smaller doses compare unfavorably with a single half maximum dose of oil of chenopodium. A dose as large as 90 grains of thymol, if administered indiscriminately throughout the population, would probably give rise to serious symptoms.

METHODS OF EXAMINING FECES

The following notes are appended for the information of any officers who may be interested in the methods we pursued in washing and examining the feces of our patients:

The examination of the feces of treated patients for worms, involving as it does the careful search through four or more stools from each patient, is a tedious process; and our constant aim was to secure the greatest accuracy.

The method we adopted was fairly uniform, and the details are as follows:

Labeling.—Each patient was labeled by means of a numbered ribbon or metal disk attached to his wrist, and he was given a chamber pot labeled with the corresponding number. Great care was taken to avoid the possible mixing of feces of different patients. In jails it was comparatively easy to avoid this, since each patient was confined to his cell. In hospital wards the chamber was placed by the patient's bed, and the dressers were given instructions to prevent the use by a patient of a chamber not his own. The patients themselves were also given explicit instructions. They were thoroughly drilled in remembering their numbers and in taking their places in right numerical order for treatment and for the changing of chambers. In the case of children, this drilling was facilitated by a scheme of rewards and punishments. In one series the possibility of error from mixing stools of different patients was controlled. At the time of treatment each patient was given a dose of small glass beads. These beads varied in color and size, and only one sort was given to each patient. The doses were so arranged that patients who occupied adjacent beds received doses of different colors or types. The patients continued to pass these beads for three or four days. Since there was no mixing of the different kinds of beads in the stools, it is fair to presume that there was no mixing of feces. In the whole series of treatments, the error from the mixing of feces of different persons must have been negligible. Eastern people are usually amenable and tractable, and this contributed largely to the successful conduct of our work. As a routine, the feces were brought to the place of examination twice daily, in the morning and at about 2 o'clock in the afternoon. They were usually carried in by the patients themselves. As the patients entered the laboratory, the numbers on the chambers and on the patients' wrists were compared, and a slip of paper with the corresponding number placed in the chamber with the feces. Each patient then received a new chamber properly numbered. A record was kept of patients who brought no stools, and a purge was given them when necessary.

Washing Stools.—Soft or fluid stools were ready to be washed at once. Very compact stools were often stirred in a quantity of water and allowed to soften somewhat before washing. In washing, the contents of a chamber, together with the numbered slip, were rinsed by a jet of water into a large sieve. The washing was done in the sieve under a jet of water. When a tap was available, the washing was done in the sink beneath it. In most cases there was no water piped to the laboratory, and it was necessary to use a stream siphoned through a rubber hose from some large container placed some feet above the ground. The lower end of the hose was provided with a pinch cock to regulate the stream.

A fine brass wire sieve was used with a mesh of 50 to an inch.

Close supervision was exercised to prevent splashing and consequent loss of material, and to see that no worms were carried from one stool to another by adhering to the sieve.

After washing, the worms with the remaining insoluble portion of the stool were rinsed, together with the labeled slip, into the chamber bearing the corresponding number.

Removal of the Worms from the Washed Stools.—The washed stools were distributed into photographic developing trays, a small portion into each tray. A dark brown colored tray was found to give the best background for the worms. The worms were picked out with needles or forceps and placed in Petri dishes containing physiologic sodium chlorid or diluted magnesium sulphate solution, and properly numbered. When a tray had been examined by a subordinate and the worms presumably all removed, it was always reexamined by one of us preferably on both white and dark ground. One of us could do this final inspecting for two or more assistants, depending on the number of worms that had to be picked out.

The original numbered slip was placed, number side up, under the cover of the Petri dish as a label. This paper slip, therefore, remained in contact with the contents of the stool from the time the chambers were received up to the final counting and recording of the worms, and was very effective in preserving accuracy. We made it a routine to examine at half-day intervals at least four stool collections from each person. The number that had to be examined was usually greater than that, since the washing in a case was not considered complete until two consecutive negatives had been obtained. It is important to get the last worms expelled, since the proportions of different species and sexes vary somewhat according to the interval following treatment.

Counting and Classifying Worms.—After every washing, a record was made of the numbers and sex of the different species.

The excess of sodium chlorid was drained off, and the Petri dish was flooded with boiling 60 per cent. alcohol. The worms are fixed by the alcohol and become rigid in the form characteristic of each species, thereby rendering differentiation of the species easy. Magnesium sulphate solution well diluted also serves well as a differentiating medium, and *Ancylostoma duodenale, Necator americanus, A. ceylanicum*, or other helminths take on characteristic appearances in it.

BALANTIDIUM COLI INFECTION IN OKLAHOMA *

ANTONIO D. YOUNG, M.D.
AND
O. J. WALKER, M.D.
OKLAHOMA CITY

The infrequent occurrence of *Balantidium coli* infection in man has prompted the careful study and reporting of a case that occurred during the past year in the service of one of us (A. D. Y.). Additional interest in the case was stimulated by the fact that to the best of our knowledge this is the first case to be reported from the state of Oklahoma. Moreover, as amebic and bacillary dysenteries are not uncommon in this semitropical country, we are glad to call attention to this additional member, evidently endemic to this locality.

Since the first definite description of the *Paramecium coli* and the report of a case by Malmsten[1] and Loven in 1857, altogether less than 150 cases of the infection have been recorded in man. From a careful search of the literature by Strong[2] in 1901, infections by the *Balantidium coli* up to that time numbered 117, and included reports from Africa, Cochin China, Cuba, Finland, Germany, Italy, North and South America, the Phillipines, Russia, the Sunda Isles and Sweden. In this country, probably the first case was reported by Mitter[3] in 1891 in a patient from Iowa. Since then, Bel and Couret[4] reported a case from Louisiana, Grey[5] three from Arkansas, Deaderick[6] one from eastern Arkansas, Sistrunk[7] one from Minnesota, the Rockefeller Sanitary Commission[8] two cases from North Carolina and one from Mississippi, and Jennings[9] one from New York.

Thanks to the careful studies by Strong[2] and Solowjew[10] of human cases, and the observations of Brooks[11] on a fatal dysentery among the apes in the New York Zoological Garden, there is little doubt as to the infectious character of the *Balantidium coli*. These studies, together with those of Bel and Couret[4] on the pathologic histology of the infection, have shown that the parasites invade all the coats and vessels of the large intestine, together with the neighboring lymph glands. This invasion is associated with a hyperplasia of lymphoid and plasma cells and eosinophils in these structures. The shallow ulcers in the intestinal wall are probably due largely to a secondary invasion by bacteria at the point of entrance of the larger parasite, as the *Balantidium* is not to be found in these ulcerations.

Various modes of infection have been suggested by the several investigators. Leuckart[12] first showed the pig to be the normal host of the organism, and suggested that infection of a human being occurred by admission of the freshly voided parasites into the alimentary canal in the food or the drinking water. He also suggested the probable entrance of the organism into the human body in the encysted state. Klein[13] reported finding the *Paramecium coli* in sewage, and the parasite has also been found in the drinking water of London, which strongly suggests the possibility of this mode of infection. However, about 25 per cent. of reported cases appear to have occurred from direct contact with swine, or following the ingestion of food products made from pork. Chichulin[14] reported an entire family infected after eating sausages made from a hog which harbored *Balantidium*. The clinical history in our case suggests two possible chances that the infection was derived from the hog directly.

REPORT OF CASE

History.—A white man, aged 60, born in Kansas, where he lived for thirty-eight years, when he came to Oklahoma, where he had since lived continuously for the past twenty-two years, could not remember any sickness of any severity during his life, and had *not* been confined to bed for illness for the past forty years. The family history was negative. The patient was admitted to the hospital, April 22, 1917, complaining of severe diarrhea, abdominal pains, and tenesmus. He had from twelve to sixteen watery stools a day.

---

* From the Bierce Memorial Laboratory of St. Anthony's Hospital.

1. Malmsten, P. H.: Infusorier sasom intestinaljar hosmenniskan, Hygiea, Stockholm, 1857, **19**, 491-501; Virchows Arch. f. path. Anat., 1857, **12**, 302.

2. Strong, R. P.: Bull. 26, Bureau of Government Laboratories.

3. Mitter, J. J.: Beitrag zur Kenntniss der Balantidium coli in menschlichen Darmkanale, Kiel, 1891.

4. Bel, G. S., and Couret, M.: Jour. Infect. Dis., 1910, **7**, 5, 609.

5. Grey: St. Louis Med. Rev., April 27, 1907.

6. Deaderick: Endemic Diseases of Southern States, 1916.

7. Sistrunk, W. E.: Intestinal Parasites Found in Individuals Residing in the Northwest, The Journal A. M. A., Nov. 4, 1911, p. 1507.

8. Reports of the Rockefeller Sanitary Commission, 1911, 1912 and 1913.

9. Jennings: New York State Jour. Med., 1912, **12**, 4, 179.

10. [illegible] lbl. f. Bakteriol., Ref., 1901, **29**, 821-849.

11. [illegible] Univ. Bull. Med. Sc., January, 1902.

12. [illegible] Arch., 1861, **1**, 80, Tafel V, Fig. AB; Die menschlichen Parisiten, 1863, **1**, 146, Fig. 21, and p. 744.

13. Klein, E.: Brit. Med. Jour., 1896, **2**, 1852.

14. Chichulin, G. N.: Voyenno-Med. Jour., 1900, 78, Med. Spec., pt., p. 2059.

The patient worked as a laborer, and one year before was feeding a small herd of twelve hogs. These animals all died of some unknown disease. During this time and up to eight months before, the patient was employed in a local packing plant as a "gut stripper," that is, in cleaning out the contents of the intestine. The patient stated that he was acustomed to stand ankle deep in hog dung, and that every day he was sprinkled with it and frequently got the fecal material in his mouth.

About eight months previous to admission to the hospital he began having frequent bloody stools and tenesmus, which continued with intermittent normal periods up to the present. During that time he had lost about 40 pounds in weight.

Physical Examination.—The patient was greatly emaciated and weak. The skin was dry. The pupils reacted normally to light and accommodation, but hearing was markedly reduced in both ears. Mentally he was stuporous, but otherwise the nervous system was good. The mouth was in a markedly septic condition from carious teeth and pyorrhea alveolaris. Otherwise the physical findings were immaterial. The temperature never exceeded 99 F., and was usually normal. The pulse averaged 78, and respiration 20 per minute. Protoscopic examination revealed the walls of the rectum and lower colon covered with thick, bloody mucus. When this was scraped away, many shallow, bleeding ulcers were seen. Repeated examinations revealed a light yellow liquid stool containing much mucus and blood, and swarming with *Paramecium coli.* No other parasitic or bacterial invasion was present. The urine examination was negative. The sputum examination was negative for amebas and *Balantidium.* Blood smears were negative for protozoa, anemias and leukemia. The hemoglobin was 80 per cent.; red blood cells, 4,610,000; white blood cells, 12,600; polymorphoneutrophils, 78 per cent.; lymphocytes, 21 per cent.; eosinophils, 1 per cent.

Treatment and Course.—Under treatment with enemas (15 grains of quinin in 1 quart of water) given as frequently as every fourth hour at first, and then gradually decreased in frequency, the organism had entirely disappeared from the stools by May 7, 1917. The patient was discharged from the hospital, May 8, with stools of normal consistency and free from parasites. At this time he was placed on compound solution of iodin (Lugol's solution), 3 drops, three times a day, and he continued this treatment for two months.

The patient was not again heard from until Jan. 7, 1918, when he returned complaining of an uncomfortable feeling in the abdomen, not painful, but of a twisting nature. Examination revealed a stool of normal consistency and color which contained an occasional *Balantidium coli.* The patient weighed 169½ pounds, a gain of approximately 29 pounds, and he stated that he had never felt better than during the past nine months. At present he is under treatment with quinin and iodin.

THE BALANTIDIUM COLI

The parasite studied by us in this case belongs to the ciliated infusoria, and is commonly known as the *Balantidium coli,* or *Paramecium coli.* The body is nearly oval, one side being somewhat longer than the other, and it measures from 0.06 to 0.01 mm. in length and from 0.05 to 0.07 mm. in breadth. The anterior end shows a short, broad, funnel-shaped peristome situated a little to one side of the anterior pole, and running back toward the center of the body. The anus is terminal at the more pointed posterior pole. The organism is encased in a thick ectosarc thickly set with cilia which surround and extend into the peristome, about which their circulatory motion keeps up a continuous inward whirl. The endosarc shows ordinarily a bean shaped nucleus, two contractile vacuoles, and many bacteria, blood cells, and finely divided food particles. The surface of the animal shows the characteristic longitudinal striations. The body exhibits great permanence of form by reason of a seeming elasticity of the ectosarc, which allows it to assume all sorts of forms when in crowded quarters; but it always returns to the oval shape when in free fluid.

The organism moves forward rapidly with a rotary motion. In dying, it ceases the forward motion and begins to rotate. Its form becomes rounder, and the motion of the cilia slower. Small globular masses exude from the anus and peristome. Finally the parasite becomes a small, round, granular mass surrounded by a capsule, or shell.

Reproduction was observed by binary fission, but not by budding. No attempt was made to cultivate the organism in view of the repeated failure of other workers to accomplish this purpose.

CIRCULATORY FAILURE

THE DIFFERENTIATION BETWEEN THAT DUE TO SHOCK AND THAT DUE TO OTHER CAUSES*

CARL J. WIGGERS, M.D.
NEW YORK

The term "circulatory failure" characterizes any condition in which the arterial pressure and, consequently, the capillary stream are reduced to such an extent that, if long continued, the functions of the normal organs are impaired and those of previously deranged organs are prevented from regaining their normal activity.

Progressive circulatory failure is a frequent and serious accompaniment of the clinical condition to which long usage has conferred the term "shock." Does it follow, *ipso facto,* that all forms of circulatory failure are due to shock and that, therefore, the condition of the arterial pressure is an index of shock and a guide as to the prognosis and efficacy of remedial measures? Or is circulatory failure produced by various agencies, among which "shock" is only one? Again, is the circulatory failure in shock distinctive in character so that it can be differentiated from other forms?

An answer to these questions is of more than academic importance, for unless circulatory failure in all conditions is produced by shock and is of the same physiologic nature, it is probable that the treatment will vary in different cases and that the concerted attempts to discover a single remedy of value in all forms of circulatory failure is futile.

Complying with the request of the Committee on Physiology of the National Research Council to partake in a cooperative investigation of the shock problem, the work in the physiologic laboratory at Cornell Medical College was organized in the spring and autumn months of 1917 to investigate these phases of the shock problem, which are of fundamental importance. To this end the pressure changes occurring in the auricles, ventricles, pulmonary circulation and systemic arteries were investigated under light ether anesthesia in naturally breathing animals in which various forms of circulatory failure were induced.

METHODS

In all experiments, the mean arterial pressure was continually recorded by a damped mercury manometer, and the respirations were likewise continuously registered by a tambour connected with a pleural cannula. These afforded a rough criterion of the state of the circulation and respiration in various forms of circulatory failure.

---

* From the Physiological Laboratory, Cornell University Medical College.

In addition, other hemodynamic changes during circulatory failure were studied in different groups of experiments. In one series of animals the changes in the "effective venous pressure," that is, the difference between the intrathoracic and intra-auricular pressures,[1] were followed by the use of a differential water manometer. Such a manometer is made when the fluid-filled limb of a water manometer is connected to a sound filled with sodium sulphate solution and inserted, by way of the jugular vein, into the right auricle; while the air-filled limb is connected with a trocar inserted into the thoracic cavity. Naturally, the precaution must be observed that during the course of the experiment the openings of the pleural cannula do not become occluded by the lungs and that the venous sound remains free from clots.

In another group of animals, the variations of the pulmonary arterial pressure were recorded by a mean-pressure manometer. This was done, in animals that continued to breathe naturally, by inserting a cannula into a pulmonary artery and subsequently repairing the thorax, after the technic that I have described[2] in detail elsewhere. The results from this phase of the question are to be credited to the cooperative investigations of Miss A. Kuehner, Messrs. H. Belcher, H. Sooper, W. Dodd, R. Douglass, M. Holsted and J. Sutton, Jr.

In still another extensive series of experiments, the details of the pressure curves in the right auricle, right ventricle and common carotid were investigated by optically recording manometers at regular intervals during the progress of circulatory failure. The details of certain phases of this investigation will be subsequently reported. It is my purpose here to state the chief results briefly, and to emphasize their practical significance in diagnosis and treatment.

TYPES OF CIRCULATORY FAILURE

The types of circulatory failure studied comprise those due to (1) exposure of the intestine; (2) hemorrhage; (3) the prolonged use of nitrites; (4) acute cardiac failure; and (5) the intravenous injection of oil and consequent fat emboli.

1. *Circulatory Failure Due to Abdominal Shock.*—The method *par excellence* of producing typical surgical shock consists in exposing the intestinal coils and allowing a stream of moist, warm air to blow over them. Experience showed that a more regular and more certain circulatory failure is induced when the intestinal loops are not manipulated. The course of circulatory failure thus produced may be divided into three stages. During the initial stage, lasting as a rule about thirty minutes after exposure of the intestine, the mean arterial pressure falls slightly or may be maintained, but in either case the arterial pressure variations recorded by optical manometers indicate that the volume of blood contained in the large arteries is reduced. The blood column ejected by the ventricular systole is thrown with greater vigor and recoils more than is normally the case. The pressure falls more rapidly throughout the systole and diastole, as the effective venous pressure during this stage is not affected or even increases. As the contour of the intraventricular pressure curves do not alter, as the heart rate, if it undergoes any change, increases, and as the pulmonary arterial pressure remains unaltered, the conclusion is reached that the reduction in the blood content and fall of pressure in the arteries is not due to a decrease in the minute volume of the heart, but to a reduction in the total arterial resistance.

During the second or progressive stage of circulatory failure, lasting through the next two to four hours, the arterial pressures progressively fall, and the optical tracings indicate that the volume of blood injected by the ventricle into the aorta during systole is relatively smaller than the amount leaving the arterial system peripherally during the interval of systole and diastole combined. As the effective venous pressure progressively lowers, as the intraventricular curves show evidence of diminished efficiency, and as the pulmonary arterial pressure is reduced, the conclusions are reached that (1) a deficient ejection of the ventricle occurs in spite of an increased heart rate, and (2) this is predominantly responsible for the fall of systemic pressures.

During the third stage, or the phase of complete circulatory failure, these changes are maintained or accentuated. The heart slows, and this contributes still further to the fall of arterial pressure, until the animal dies of respiratory failure.

Briefly summarized, circulatory failure in abdominal shock is characterized, in addition to the fall of arterial pressure, by a low peripheral arterial resistance, a reduced venous pressure, and deficient systolic discharge of the ventricles.

2. *Circulatory Failure Due to Hemorrhage.*—A reinvestigation of the sequence of events in hemorrhage by the methods indicated above confirmed my conception as to the sequence of dynamic events, published several years ago.[3] Briefly stated, if an artery of considerable size is opened, the total arterial resistance to the flow of blood from the aorta diminishes and the arterial pressures fall. The pulse pressure becomes greater, and the systolic and diastolic pressures decline more rapidly. The effective venous pressure does not decrease at once, the cardiac efficiency, as determined by the contour of the ventricular pressure curve, is unchanged, and the pulmonary pressure is unaltered, or may increase slightly if the heart accelerates. If the hemorrhage is from a vein, the systemic and pulmonary arterial pressures are unaffected by a similar loss of blood.

With the continued loss of blood the venous return is affected so much that the effective venous pressure is reduced, the cardiac discharge is impaired and, in spite of cardiac acceleration, the minute output of the heart is diminished. Pulmonary arterial and systemic arterial pressures then fall together, owing to this central factor as well as to the total vascular resistance, which remains below normal in spite of compensatory contraction in unimpaired vessels. If bleeding is unchecked, these events continue until death from respiratory failure supervenes.

It is apparent that the dynamic mechanisms operating in abdominal shock and from prolonged arterial hemorrhage are precisely alike. In both, a reduction of arterial resistance initiates the fall of arterial pressure; in both, a diminished venous return, a fall of effective venous pressure, and a deficient cardiac discharge are prominent factors in the fatal fall of arterial pressure.

3. *Circulatory Failure from Prolonged Use of Nitrites.*—It is exceedingly difficult in the dog to obtain

---

[1] Henderson and Barringer: Am. Jour. Physiol., 1909, **23**, 350; ibid., 1913, **31**, 288.

[2] Wiggers, C. J.: Am. Jour. Physiol., 1912, **30**, 247.

[3] Wiggers, C. J.: The Pathologic Physiology of the Circulation During Hemorrhage, Arch. Int. Med., July, 1914, p. 33.

any permanent fall of arterial pressure through vasodilatation alone. As the "nitrites" on injection exert no *direct* effect on the circulation other than to produce a vasodilatation, their use seemed to offer the most advantageous method of producing a prolonged vasodilatation unattended by disturbances other than those that are secondarily called into play. Since the prolonged use necessary to maintain maximal vasodilatation causes the transformation of the hemoglobin to methemoglobin and so reduces the oxygen-yielding power of the blood, it is probable that the final circulatory failure following their prolonged use is attributable to other actions than the vascular effect alone.

The slow infusion of sodium nitrite or continued inhalation of amyl nitrite produces an initial rapid fall of arterial pressure. The fall is rarely below 80 mm., however, when systemic pressure is normal. The optical tracings during this stage show the same changes that are characteristic in abdominal shock, and indicate a reduced arterial volume due to a diminished total resistance. The heart is moderately or markedly accelerated, depending on the original degree of vagal tone. There is no evidence that the maximal degree of peripheral arterial dilation possible is able per se to reduce the effective venous pressure. It remains unaltered or rises if the cardiac acceleration is not too great, but may fall slightly when cardiac acceleration is extreme. The pressures in the pulmonary artery and left auricle rise,[4] probably on account of the cardiac acceleration and augmented minute discharge. The intraventricular pressure curves show no change from normal. After arterial pressure has reached its lowest level, it gradually recovers in spite of continued infusion or inhalation of nitrites. The arterial pressure curves optically recorded indicate that there is less disproportion between systolic injection and peripheral outflow. Since the pulmonary arterial pressure remains high and the heart continues to accelerate, this may be attributed to an increasing cardiac discharge. This stage of recovery may be short lived or continued for a considerable interval. It is followed by a period when both systemic and pulmonary arterial pressures fall, the heart slows, and the effective venous pressure increases slightly. These effects are evidently due to a failing heart, and lead rapidly to death. Whether this is due to a direct action of the nitrites on the heart or to deficient oxidation from excessive formation of methemoglobin is difficult to say.

To summarize, nitrites, through a reduction of peripheral resistance, cause a pronounced and rapid fall of arterial pressure. The dilatation thus produced does not markedly affect the effective venous pressure, while the rapid rate definitely increases the pulmonary arterial pressure. Prolonged vasodilatation, then, in itself does not lead to complete circulatory failure. This occurs after prolonged administration, owing to cardiac failure accompanied by an elevation of effective venous pressure.

4. *Circulatory Failure Following Acute Cardiac Failure.*—By acute cardiac failure is meant a failure of the inherent contractile power of the heart so that it is unable, when supplied by an adequate volume of venous blood, to transfer it to the arterial side. Such acute cardiac failure, superimposed on reduced peripheral resistance, is the cause of circulatory failure after nitrites. It is a frequent cause of death in cardiac diseases. It may be studied experimentally as an isolated factor in circulatory failure through the depressant effects of concentrated ether vapor or infusion of potassium salts.

In both cases the arterial pressure falls progressively. The pulmonary arterial pressure is also steadily lowered, but the effective right auricular pressure increases markedly, owing to the fact that blood is dammed back. The intraventricular pressure curves rise less steeply in spite of a higher initial pressure, and the heart rate is slowed.

5. *Circulatory Failure Following Intravenous Injection of Neutral Oil.*—Neutral olive oil, as such and in emulsions made by the use of soaps, lecithin and gum acacia, were injected into the femoral or jugular veins, in doses ranging from 0.5 to 24 c.c. per animal.

The smaller doses were without effect on the mean arterial pressure, but the pressure curves recorded from the right ventricle showed typical signs that the right ventricle was contracting against an increased resistance.[5] The change was not great enough to affect the mean pulmonary arterial pressure, as recorded, or the effective venous pressure, as measured by the differential manometer.

Larger doses (that is, above 5 c.c.) produced a fall of mean arterial pressure. The pressure in the pulmonary artery increased, and the effective venous pressure also was markedly increased. The intensity of the pressure changes depended somewhat on the amount of oil injected.

SUMMARY OF DYNAMIC CHANGES IN DIFFERENT FORMS OF CIRCULATORY FAILURE *

Cause of Circulatory Failure	Arterial Pressure Change	Pulmonary Arterial Pressure Change	Right Ventricular Efficiency	Effective Venous Pressure
1. Abdominal shock:				
Early stage	—	0	0	0 or +
Late stage	——	—	——	——
2. Progressive hemorrhage				
Early stage	—	0	0	0
Late stage	——	—	——	——
3. Nitrites				
Early stage	—	+	0	0
Late stage	——	—	—	+
4. Acute cardiac failure.	—	—	—	++
5. Fat embolism	—	++	—	++

* Double plus and double minus signs indicate a pronounced increase *and decrease, while single signs denote a slight or moderate change.*

Larger doses produced a fall of mean arterial pressure. Simultaneously, the pulmonary arterial pressure and effective venous pressure increased markedly. These changes can be referred only to pulmonary emboli, the existence of which was also verified by microscopic examination kindly carried out by Professor Ewing. The intensity and rapidity of these pressure changes was not always proportional to the quantity of oil injected, but depended apparently on the number of lung passages that were clogged by the fat emboli. In the case of pronounced embolism, death occurred within a few minutes, because of respiratory failure consequent to the extremely low blood pressure. Incidentally, it may be pointed out that, in spite of the extreme distention of the right heart and enormous rise of venous pressure, auricular fibrillation never occurred, as verified by the electrocardiogram. If pulmonary embolism is less extensive, and an adequate number of pulmonary paths remain open, the arterial pressure becomes reduced, owing to the deficient discharge of the left ventricle and, after a variable lapse of time, may return toward normal. When this occurs, pulmonary arterial and effective venous pressures generally decline toward the normal level.

---

[4] Compare Wiggers, C. J.: A Physiological Investigation of the Treatment in Hemoptysis, Arch. Int. Med., July, 1911, p. 17.

[5] Compare Wiggers, C. J.: Am. Jour. Physiol., 1914, 33, 391; ibid., 35, 140.

PRACTICAL SIGNIFICANCE OF RESULTS

Diagnosis.—Pronounced types of shock offer no specific difficulty in diagnosis other than when the question of differentiation from progressive internal hemorrhage arises. The dynamic studies indicate that there is no essential difference in the circulatory failure following the two conditions, so that clinical differentiation on the basis of circulatory changes is not possible. The fact that in hemorrhage the hemoglobin percentage and red cell count are reduced by the dilution of the blood stream, while no such change has been reported in shock, may be of differential value, as suggested by Bainbridge and Bullen.[6]

The detection of the earliest stages of shock are of extreme importance, as in this phase the patient reacts more readily to remedial procedures. For this purpose the initial fall of arterial diastolic pressure has been proposed by Porter.[7] The results of this investigation indicate that, while a decline of diastolic pressure is the earliest evidence of circulatory failure in shock, it is not peculiar to it. To determine the fact that circulatory failure has begun, without a knowledge of the factor to which it is due, is of little value in the application of the proper remedial measures. We have thus far no circulatory sign or criterion by which the incipient state of shock can be recognized.

Before the state of shock has progressed very far, and while the circulatory condition is still amenable to therapeutic measures, the venous pressure has begun to decrease, as postulated by Henderson and his collaborators,[8] confirmed by Morrison and Hooker,[9] and again verified in this investigation. It is therefore important that the state of the venous pressure should be carefully followed in suspected cases of shock. For this purpose one may use the excellent apparatus of Hooker, when available and conditions permit its employment. It is even probable that some readily applied modification of the method suggested originally by von Frey may be sufficient. Von Recklinghausen[10] has suggested a single bedside test: One hand of the patient in the recumbent position is allowed to rest by his side, on the bed; the other placed on the thigh. If the veins in the former hand fill and in the latter collapse, normal pressure relations exist. If both collapse, venous pressure is low.

The combination of low venous pressure and a falling diastolic arterial pressure are conditions typical of circulatory failure in hemorrhage and shock alone. Their use in combination with hemoglobin determinations should be of clinical value in establishing the presence of circulatory failure due to shock.

Treatment.—In considering the treatment of circulatory failure in shock, the principles rather than the specific remedies can only be discussed. Experimental work shows that circulatory failure is initiated by a reduced peripheral resistance, but the condition does not become serious until the venous pressure falls. To counteract these mechanisms, the treatment must be directed to (1) overcome the reduced resistance, and (2) replenish the deficient venous return. For the former purpose, vasoconstrictor drugs, such as epinephrin, have been employed, either intramuscularly, intratracheally, as suggested by Auer and Gates,[11] intraperitoneally, as suggested by Cannon,[12] or intraspinally, as recently advocated by Auer and Meltzer.[13] To accomplish the latter need, intravenous infusions of physiologic sodium chlorid solution admixed with gum acacia, as recently suggested by Bayliss[14] and recommended by the British committee,[15] or graded intravenous infusion of glucose solutions, have been suggested by the experiments of Erlanger and Woodyatt.[16] The breathing of carbon dioxid mixtures has been recommended for a similar purpose, but on different grounds: by Henderson because they act chemically, and by Porter on the basis that the augmented respiration so induced mechanically favors the return of blood to the heart.

The fact is emphasized by this study that these and similar procedures aiming to augment venous pressure are based on principles that are sound, as regards circulatory failure in shock. They can be of little value in circulatory failure in any condition in which the venous pressure is already high. Thus, it would be of no avail to increase the venous pressure in forms of circulatory failure similar to that following the use of nitrites, in which a dilatation of peripheral arteries alone is concerned, for in such cases venous pressure is entirely adequate to supply the heart. A reduction of venous pressure by bleeding would seem to be a more rational procedure in the case of acute cardiac failure when a further increase in venous pressure might serve merely to overburden the already depressed heart. If circulatory failure on the battlefield, as held by Porter,[7] is indeed due to fat emboli, such as follow intravenous injection of oil, a further increase in venous pressure by any method is distinctly contraindicated, for it is precisely by the overdistention of the right heart, due to the high venous pressure, that the heart finally fails.

For these therapeutic reasons alone, the differentiation of circulatory failure, such as is found in surgical shock, from other types of circulatory failure cannot be emphasized too strongly.

---

[6] Bainbridge and Bullen: Lancet, London, 1917, **2**, 51.

[7] Porter: Boston Med. and Surg. Jour., 1916, **175**, 854; Compt. rend. Acad. d. sc., 1917, **165**, 164.

[8] Henderson: Am. Jour. Physiol., 1911, **27**, 152.

[9] Morrison and Hooker: Am. Jour. Physiol., 1915, **37**, 86.

[10] Von Recklinghausen: Arch. f. exper. Path. u. Pharmakol., 1906, **55**, 484.

[11] Auer and Gates: Jour. Exper. Med., 1916, **33**, 757.

[12] Cannon: Boston Med. and Surg. Jour., 1917, **176**, 859.

[13] Auer, John, and Meltzer, S. J.: The Administration of Epinephrin by Intraspinal Injections, The Journal A. M. A., Jan. 12, 1918, p. 70.

[14] Bayliss: Arch. méd. belges, 1917, **70**, 793.

[15] Report of British Committee on Shock, transmitted to Professor Howell.

[16] Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, The Journal A. M. A., Oct. 27, 1917, p. 1410.

Welfare Service During the War and Reconstruction Period.—In the *Bulletin of the National Conference of Social Work* Robert A. Woods, president, says that the entire system of the regular and usual philanthropic activities throughout the country is having new and special burdens laid on it on account of the war. In spite of increased cost of operation and depletion of staffs by calls into military service, the accustomed work of community agencies is more urgently needed than ever before. Among the conditions which emphasize this are "the subtle disorganization of family life, the unrest and emotionalism which affects young men and women, the noticeable increase in juvenile delinquency, the presence of new dangers to public health and vitality owing to inadequate food and fuel, the danger of lowered industrial standards, the undermining of family economic well-being due to increase in prices beyond wages," etc. A warning is given that we should not only take care of present conditions in these respects, but that we should be prepared for the period of reconstruction, which at farthest, will soon be on us.

any permanent fall of arterial pressure through vasodilatation alone. As the "nitrites" on injection exert no *direct* effect on the circulation other than to produce a vasodilatation, their use seemed to offer the most advantageous method of producing a prolonged vasodilatation unattended by disturbances other than those that are secondarily called into play. Since the prolonged use necessary to maintain maximal vasodilatation causes the transformation of the hemoglobin to methemoglobin and so reduces the oxygen-yielding power of the blood, it is probable that the final circulatory failure following their prolonged use is attributable to other actions than the vascular effect alone.

The slow infusion of sodium nitrite or continued inhalation of amyl nitrite produces an initial rapid fall of arterial pressure. The fall is rarely below 80 mm., however, when systemic pressure is normal. The optical tracings during this stage show the same changes that are characteristic in abdominal shock, and indicate a reduced arterial volume due to a diminished total resistance. The heart is moderately or markedly accelerated, depending on the original degree of vagal tone. There is no evidence that the maximal degree of peripheral arterial dilation possible is able per se to reduce the effective venous pressure. It remains unaltered or rises if the cardiac acceleration is not too great, but may fall slightly when cardiac acceleration is extreme. The pressures in the pulmonary artery and left auricle rise,[4] probably on account of the cardiac acceleration and augmented minute discharge. The intraventricular pressure curves show no change from normal. After arterial pressure has reached its lowest level, it gradually recovers in spite of continued infusion or inhalation of nitrites. The arterial pressure curves optically recorded indicate that there is less disproportion between systolic injection and peripheral outflow. Since the pulmonary arterial pressure remains high and the heart continues to accelerate, this may be attributed to an increasing cardiac discharge. This stage of recovery may be short lived or continued for a considerable interval. It is followed by a period when both systemic and pulmonary arterial pressures fall, the heart slows, and the effective venous pressure increases slightly. These effects are evidently due to a failing heart, and lead rapidly to death. Whether this is due to a direct action of the nitrites on the heart or to deficient oxidation from excessive formation of methemoglobin is difficult to say.

To summarize, nitrites, through a reduction of peripheral resistance, cause a pronounced and rapid fall of arterial pressure. The dilatation thus produced does not markedly affect the effective venous pressure, while the rapid rate definitely increases the pulmonary arterial pressure. Prolonged vasodilatation, then, in itself does not lead to complete circulatory failure. This occurs after prolonged administration, owing to cardiac failure accompanied by an elevation of effective venous pressure.

4. *Circulatory Failure Following Acute Cardiac Failure.*—By acute cardiac failure is meant a failure of the inherent contractile power of the heart so that it is unable, when supplied by an adequate volume of venous blood, to transfer it to the arterial side. Such acute cardiac failure, superimposed on reduced peripheral resistance, is the cause of circulatory failure after nitrites. It is a frequent cause of death in cardiac diseases. It may be studied experimentally as an isolated factor in circulatory failure through the depressant effects of concentrated ether vapor or infusion of potassium salts.

In both cases the arterial pressure falls progressively. The pulmonary arterial pressure is also steadily lowered, but the effective right auricular pressure increases markedly, owing to the fact that blood is dammed back. The intraventricular pressure curves rise less steeply in spite of a higher initial pressure, and the heart rate is slowed.

5. *Circulatory Failure Following Intravenous Injection of Neutral Oil.*—Neutral olive oil, as such and in emulsions made by the use of soaps, lecithin and gum acacia, were injected into the femoral or jugular veins, in doses ranging from 0.5 to 24 c.c. per animal.

The smaller doses were without effect on the mean arterial pressure, but the pressure curves recorded from the right ventricle showed typical signs that the right ventricle was contracting against an increased resistance.[5] The change was not great enough to affect the mean pulmonary arterial pressure, as recorded, or the effective venous pressure, as measured by the differential manometer.

Larger doses (that is, above 5 c.c.) produced a fall of mean arterial pressure. The pressure in the pulmonary artery increased, and the effective venous pressure also was markedly increased. The intensity of the pressure changes depended somewhat on the amount of oil injected.

SUMMARY OF DYNAMIC CHANGES IN DIFFERENT FORMS OF CIRCULATORY FAILURE *

Cause of Circulatory Failure	Arterial Pressure Change	Pulmonary Arterial Pressure Change	Right Ventricular Efficiency	Effective Venous Pressure
1. Abdominal shock:				
Early stage	—	0	0	0 or +
Late stage	— —	—	— —	— —
2. Progressive hemorrhage				
Early stage	—	0	0	0
Late stage	— —	—	— —	— —
3. *Nitrites*				
Early stage	—	+	0	0
Late stage	— —	—	—	+
4. Acute cardiac failure.	—	—	—	++
5. Fat embolism	—	++	—	++

* Double plus and double minus signs indicate a pronounced increase and *decrease*, while single signs denote a slight or moderate change.

Larger doses produced a fall of mean arterial pressure. Simultaneously, the pulmonary arterial pressure and effective venous pressure increased markedly. These changes can be referred only to pulmonary emboli, the existence of which was also verified by microscopic examination kindly carried out by Professor Ewing. The intensity and rapidity of these pressure changes was not always proportional to the quantity of oil injected, but depended apparently on the number of lung passages that were clogged by the fat emboli. In the case of pronounced embolism, death occurred within a few minutes, because of respiratory failure consequent to the extremely low blood pressure. Incidentally, it may be pointed out that, in spite of the extreme distention of the right heart and enormous rise of venous pressure, auricular fibrillation never occurred, as verified by the electrocardiogram. If pulmonary embolism is less extensive, and an adequate number of pulmonary paths remain open, the arterial pressure becomes reduced, owing to the deficient discharge of the left ventricle and, after gross morbid changes. For several days before death, he had the facies of impending death. The poison was profound without being irritative. There was no associated delirium; there was none of the activity of meningeal irritation; there was not the reaction and collapse of hepatic or uremic toxemia. The forceful effects of asphyxia, noticed especially the day before death, puts the etiologic toxin in the class of potent chemicals.

---

[4] Compare Wiggers, C. J.: A Physiological Investigation of the Treatment in Hemoptysis, Arch. Int. Med., July, 1911, p. 17.

[5] Compare Wiggers, C. J.: Am. Jour. Physiol., 1914, 33, 391; ibid., 35, 140.

The kidney insufficiency probably helped to accumulate the toxin, but, considered by itself, apparently played a minor rôle.

The physical question of the small tumor acting as the starting point for intussusception is not uncommon. In the records of the McManes Laboratory of the University of Pennsylvania there are several similar cases. These are mostly secondary tumors, as carcinoma and one very interesting case of secondary hypernephroma.

SUMMARY

1. The case illustrates a small adenoma of the jejunum as the starting point for an intussusception.
2. This intussusception resulted in high obstruction of the intestine, with marked changes in the intestinal wall at this point.
3. These intestinal changes produced a toxemia.
4. This toxemia was extremely potent, and ended in death.
5. The manifestations were those of an asphyxia without stimulative effects.

DETERMINATION OF THE TYPE OF PNEUMOCOCCUS IN THE SPUTUM OF LOBAR PNEUMONIA

A RAPID, SIMPLE METHOD [*]

CHARLES KRUMWIEDE, Jr., M.D.
AND
EUGENIA VALENTINE, B.A.
NEW YORK

As a result of the observation that a boiling alkaline hypochlorite solution would not destroy the precipitable substance of bacteria, we developed a rapid method for the preparation of a concentrated precipitin antigen from bacteria.[1] The same method was found to be applicable to the preparation of a precipitin antigen from pneumonia sputum. In an appreciable proportion of specimens the type of pneumococcus present could be identified by this method in from one half to one hour after the receipt of the sputum. More recently, Mitchell and Muns[2] have reported a less complicated method for the preparation of an antigen from sputum. Their reports, as well as the results of our attempts to shorten the time in carrying out the mouse test according to the method of Blake,[3] indicated that many sputums are comparatively rich in soluble antigen. This being so, the solution of the pneumococci in the sputum, the object of the alkaline hypochlorite method, would be unnecessary.

Although the sand method of Mitchell and Muns is comparatively simple, we were certain, because of the facts given, that a still simpler method could be devised. One of the steps in the hypochlorite method involved the removal of the coagulable albumins. We had noted that the specimens yielding positive results were usually very rich in coagulable albumins, which one would expect to be the case in an inflammatory exudate of pulmonary origin. In fact, the presence of albumin has been used for diagnostic purposes, especially for the examination of sputums from pulmonary tuberculosis. A trial showed that sputums having the appearance of being actually raised from the lung coagulated more or less firmly when heated to 100 C. On this basis we evolved the following rapid method of preparing a precipitin antigen directly from sputum:

TECHNIC

From 3 to 10 c.c. of the sputum, depending on the amount available, is poured from the sputum container into a test tube. This is placed in boiling water for several minutes or longer until a more or less firm coagulum results, which will occur if the specimen is a suitable one. The coagulum is then broken up with a heavy platinum wire or glass rod, and saline is added. Just enough saline should be added so that, on subsequent centrifuging, there will be sufficient fluid to carry out the test. If too much is added, the resulting antigen may be too dilute. In some instances little or no saline is necessary, as sufficient fluid separates from the coagulum.

After the addition of the saline, the tube is again placed in boiling water for a few minutes to extract the soluble antigen from the coagulum, the tube being shaken several times during the heating. The broken clot is then thrown down by centrifuge, and the clear supernatant fluid used for the test. To hasten the appearance of the reaction and to obtain a reaction even should the antigen be dilute, we layer the antigen over the "type" serums, using the latter undiluted. Two-tenths c.c. of the three "type" serums are placed in narrow test tubes, and the antigen added from a capillary tube with a rubber teat. If the tubes containing the serum are tilted and the antigen dropped slowly on the side of the tube just above the serum, no difficulty will be encountered in obtaining sharp layers, as the undiluted serum is sufficiently higher in its specific gravity. The tubes are then placed in the water bath at from 50 to 55 C. and observed after several minutes.

If a fixed type was present in the sputum, and should the sputum have been rich in antigen, a definite contact ring is seen in the tube containing the homologous serum. With sputums less rich in antigen, the ring may develop more slowly, and it will be less marked. Some experience is necessary in detecting the less marked contact rings and in differentiating them from an apparent ring which may be confusing, if one of the serums is darker in color, giving thus a sharper contrast with the supernatant antigen. The true ring is more or less opaque, and this quality can be seen by tilting the tubes and looking at the area of contact against a dark background, for example, the lower edge of a dark shade raised to just above the level of the eyes. The advantage of the ring test is that a ring may be evident, whereas definite clouding or visible precipitate may appear only after longer incubation, or may be so slight even after an hour's incubation as to leave one in doubt. It is well to shake the tubes after twenty minutes, as many of the specimens will show definite clouding or precipitate either at once or on further incubation, thus checking the ring reading. All of the observations given in the accompanying table were read within one-half hour, and the majority were evident in less than ten minutes.

RESULTS

The table gives the results thus far obtained. The quality of the sputum is noted and also the degree of coagulation, as it is evident on comparing these data with the outcome of the test that the success of the test depends on the quality of the sputum submitted.

---

[*] From the Bureau of Laboratories, Department of Health, New York City.

[1] Krumwiede, Charles, Jr., and Noble, W. Carey: Jour. Immunol., to be published.

[2] Mitchell, O. W. H., and Muns, W. E.: Jour. Med. Research, 1917, **37**, 339.

[3] Blake, F. G.: Jour. Exper. Med., 1917, **26**, 67.

The specimens examined are the routine samples submitted to the laboratory by private physicians, and no special care was taken in the selection of the sample. The results with the sand method of Mitchell and Muns, the ring test being used, are given whenever sufficient material was available for duplicate tests. A few examinations by the method of Avery[4] are also given because they are based on the results of broth cultures incubated from five to eighteen hours. The method, therefore, may be employed as a check method, even though the tubes are inoculated too late for examination on the same day. Further observations are necessary, however, as to the possible disturbing influence of overgrowth by other organisms after a longer period of incubation than five hours, which might lead to a negative result. Sterile citrated horse blood was employed in place of the defibrinated rabbit blood advised by Avery. The layer method was not used with the Avery method, as the broth does not layer well. The results were finally checked by mouse inoculation or the isolation of pure cultures directly from the sputum. All the Group IV results were checked by mouse inoculation, to exclude the possibility of the presence of small numbers of pneumococci of the fixed types.

RESULTS *

No.	Quality of Sputum	Coagulation	Coagulation Method		Sand Method		Avery Method		Result of Final Check Test: Type or Group
			Type	Degree of Reaction	Type	Degree of Reaction	Type	Degree of Reaction	
1	Good	+	III	+	III	+	..	..	III
2	Good	+	III	+	III	+	..	..	III
3	Good	+	I	+	..	..	..	..	I
4	Good	+	III	+	III	+	..	..	III
5	Mucoid	—	—	—	—	—	..	..	I
6	Good	+	II	+	II	±	II	±	II
7	Good	+	III	+	—	—	..	..	III
8	Good	+	—	—	—	—	..	..	IV
9	Good	+	II	+	II	+	..	..	II
10	Slimy	—	—	—	..	..	..	..	II subgroup
11	Fair	±	I	±	I	×	I	×	I
12	Salivary	—	—	—	—	—	—	—	IV
13	Good	+	II	+	II	±	II	+	II
14	Good	+	I	±	I	×	..	..	I
15	Salivary	—	—	—	—	—	I	+	I
16	Good	+	I	+	I	+	I	+	I
17	Good	+	II	+	..	..	II	+	II
18	Fair	+	III	+	..	..	—	—	III
19	Good	+	—	—	..	..	—	—	IV
20	Good	+	I	+	..	..	I	+	I
21	Salivary	—	—	—	..	..	..	..	I
22	Good	+	—	—	—	—	—	—	IV
23	Salivary	—	—	—	..	..	—	—	Streptococcus
24	Mucoid	—	—	—	—	—	—	—	Streptococcus
25	Good	+	III	+	III	+	..	..	III

* The symbols indicate, for degree of reaction: +, marked reaction; ±, fair reaction; ×, slight reaction; for type: —, no reaction; .., test not done.

The coagulation method failed in four instances in which fixed types were present, but in each case the sputum was an unsatisfactory sample, which was evident on inspection, and coagulation also was absent. If coagulation does not occur, there is little use in proceeding with the method. In some instances in which coagulation has been slight and the extract opalescent, dilution of the extract has cleared this sufficiently so that a ring reaction could be seen. In these instances, naturally, the content of antigen in the sputum was large. We have attempted to coagulate the mucoid types of sputum by adding egg albumin. This has failed, as on subsequent extraction with saline the mucus goes into solution, and a clear antigen cannot be obtained.

We have obtained in this series somewhat more successful results with the coagulation method than with the sand method. To our mind the advantage of the former is the lessened labor in performing the test, and the greater cleanliness. It would seem that the rapid method, checked by the Avery method, would suffice for the majority of specimens if they are satisfactory in quality. The only necessity of mouse inoculation would be when both give no reaction with type serums, or when the specimen is obviously unsatisfactory for the foregoing methods. Even without mice, which are difficult to obtain at present, the two methods could be employed with considerable success as a preliminary to serum administration. With satisfactory specimens, few cases would fail to receive the serum because of unsuccessful tests. For statistical purposes as to incidence of type, the methods naturally would give somewhat incorrect results.

The advantage of the rapid method, that one can supply the messenger delivering the sputum with the appropriate serum in most of the cases for which type serums are available, and the great gain to the patient through earlier administration of the serum, need little comment. These advantages should help materially in popularizing the administration of serum to patients outside of the larger hospitals.

HEMORRHAGIC DISEASE IN NEW-BORN

TREATED BY INJECTION OF CITRATED BLOOD IN THE SUPERIOR LONGITUDINAL SINUS

OSCAR BERGHAUSEN, B.A., M.D.
CINCINNATI

The following case report may be of interest to the general profession, since it shows that the superior longitudinal sinus may safely be punctured when bleeding occurs in the new-born, and that citrated blood may be successful in controlling the hemorrhage. This method was employed as a last resort, after I had tried without success to introduce the blood through a prominent vein at the elbow and on the left side of the neck. A fair-sized steel needle was introduced in the sinus, and when blood began to flow, between 150 and 200 c.c. of the father's blood in 2 per cent. sodium citrate solution was introduced rather slowly, the blood continuing to drop from the needle whenever the syringe was detached. The method is so simple that it probably will become the one of choice in the future. Citrated or whole blood can readily be introduced in this way, and the amount of blood necessary can be readily determined by the improvement in the condition of the patient, because the effects are usually immediate. A pale, apparently lifeless infant is quickly transformed into a rosy and crying baby.

Subsequently it was learned that Knox[1] had previously employed the same method successfully in treating an infant which had passed from 3 to 5 ounces of tarry blood-stained material, evidently a hemorrhage from the intestinal tract. Knox used 50 c.c. of the mother's blood in 60 c.c. of sodium citrate solution, introducing 15 c.c. of the mixture in the longitudinal sinus and the rest in small quantities intramuscularly into the buttocks, the improvement being gradual. In this case intramuscular injections of 20 c.c. of the noncitrated paternal blood had been of no avail, but the injection of between 150 and 200 c.c. of citrated paternal blood in the longitudinal sinus was followed by immediate improvement.

---

[4] Avery, O. T.: Determination of Types of Pneumococcus in Lobar Pneumonia, The Journal A. M. A., Jan. 5, 1918, p. 17.

[1] Knox, J. H. M., Jr.: Case of Hemorrhagic Disease in New-Born Treated by Indirect Transfusion, Arch. Pediat., **34**, 771.

REPORT OF CASE

Jan. 13, 1918, Mrs. R. S., aged 24, after being in labor three days, was delivered of a male child, forceps being necessary. The forceps injured the soft parts over the back of the head, over the left eyebrow, and the inner side of the upper lip. The bleeding could not be controlled, although sutures, epinephrin, a blood-coagulating substance and pressure were used locally. Neither parent could give a history of a bleeder in the family. Twenty-four hours after the delivery, Dr. Charles Heisel asked me to see the patient. At this time 20 c.c. of the paternal blood was introduced intramuscularly into the buttocks and the back. The bleeding had not ceased by the following morning, when the condition of the child made a transfusion of blood necessary. About 250 c.c. of the father's blood in 25 c.c. of 2 per cent. sodium citrate solution were collected. Fully 50 c.c. of this mixture were lost in attempts to introduce the blood after the vein at the elbow and on the left side of the neck had been laid bare. As a last resort, it was determined to puncture the superior longitudinal sinus, although a recent writer[2] had warned against such a procedure in a case of hemorrhagic disease in the new-born. After the blood began to drop from the needle, from 150 to 200 c.c. of the citrated blood were introduced, the blood continuing to drop from the needle each time that the syringe was detached. Improvement in the condition of the infant ensued while the operation was in progress. January 15 and 16, the rectal temperature measured 102.2 at 9 a. m., but on the morning of the 17th it measured 98.2. The bleeding has not recurred. The stool was normal throughout. The urine was scanty during the first day, but was passed freely after the transfusion.

19 West Seventh Street.

Military Medicine and Surgery

SOME HERNIAS THAT DISQUALIFY FOR MILITARY SERVICE, WHETHER OPERATED ON OR NOT

JOSEPH COLT BLOODGOOD, M.D.
BALTIMORE

Men who have been operated on successfully for inguinal hernia and show no sign of recurrence at the time of examination are accepted for general military service, both among applicants for enlistment and among registrants for the selective service. It is now under consideration to accept both applicants for enlistment and registrants in the selective draft who are suffering with inguinal hernia of certain types, and to subject them to operation after they have become soldiers. This will undoubtedly admit many men otherwise physically fit into the Army.

There is, however, a small group of hernias, which can be easily recognized at the first examination, for which up to the present time operations failed to result in a cure in from 20 to 50 per cent. of cases. I called attention[1] to this small group of inguinal hernia in 1899. Among 243 cases of inguinal hernia, this type occurred in eleven instances, about 4.5 per cent. Among these eleven cases there were six recurrences, more than 50 per cent., in from six weeks to six months after operation. In the larger group, 232 cases, there were only two recurrences, less than 1 per cent., and in these two cases the wound had broken down.

In this smaller group the hernia need not necessarily be large, or present any of the signs and symptoms of the so-called complicated hernia. This type of inguinal hernia, however, can be recognized when the patient is examined lying flat on his back. If the finger is pressed against the scrotum and pushed up into the external ring, as the index finger passes through the external ring (the hernia having been reduced), in the larger number of cases it meets an obstruction (the conjoined tendon) and is deflected upward and outward, following the course of the inguinal canal. In this smaller group the index finger meets no obstruction, but enters at once into the peritoneal cavity, and in some cases the opening is so large that when the index finger is flexed it can palpate the pubic bone in the region of the symphysis. Now and then one gets this impression to a slighter degree; but if the patient is asked to raise his head, the contracting rectus muscle pulls tight the relaxed conjoined tendon, and the finger of the experienced examiner at once detects that the conjoined tendon is not absent or obliterated, but simply relaxed.

In those cases in which this examination detects the complete absence of the conjoined tendon, the ordinary operation for inguinal hernia, according to my investigations up to 1899, failed to cure in about 50 per cent. of the cases.

The majority of operators today admit about 5 per cent. of recurrences in all cases of hernia. I am of the opinion that the majority of these recurrences are not due so much to the fault of the ordinary operation as to the type of the hernia and the absence of the conjoined tendon.

After this observation in 1898, I devised and published a description of the transplantation of the rectus muscle to take the place of the conjoined tendon — a method independently worked out by Woelfler in 1898. Later, Halsted modified the transplantation of the muscle by turning down a pedunculated flap of the anterior sheath of the rectus. Later observations of these cases have shown that the percentage of recurrences has been reduced to about 15 or 20; the exact figures have not been worked out. But there is no doubt that some recurrences still take place.

For this reason I take this opportunity to call attention to this group, with the hope of getting the opinion of surgeons with large experience in the operation for hernia.

When we have all the evidence at hand, we may be able to advise the surgeons who will have charge of this large operative work to be on the lookout in their examinations for this group, and to discharge these men from general military service. It is my opinion that it is possible to select this group at the complete examination at the cantonment, and these applicants or registrants should be rejected, saving the government the expense incidental to the operation and later discharge for a recurrent hernia.

I would appreciate the expression of opinions by my colleagues on this point.

904 North Charles Street.

Medical Inspection.—The authority which has the right to compel attendance at school has the added duty of insisting that no harm shall come to those who go there.—*Health Bull.*

---

[2] Unger, L. J.: Transfusion of Unmodified Blood, The Journal A. M. A., Dec. 29, 1917, p. 2159.

[1] Bloodgood, J. C.: Johns Hopkins Hosp. Rep., 1899, **17**, 277.

VALUE OF ROENTGEN RAY IN DIAGNOSIS OF PULMONARY TUBERCULOSIS IN WAR TIME

LAWRASON BROWN, M.D.
SARANAC LAKE, N. Y.

The entire medical profession has for some months been deeply interested in the many problems connected with the war. Although later questioned, early reports of an alarming amount of tuberculosis in the French army among the men in the trenches, as well as those behind the lines, focused attention on this phase of the medical problem. The question of excluding the tuberculous from the army, especially from that part destined for overseas activity, has seemed to many to be most pressing at this time.

It is clearly evident to any one who has made even a cursory inquiry into the medical examinations of the national army that no army has ever been so well examined. My object is not to criticize but to attempt to show how, along one line, even greater efficiency might be obtained.

The early diagnosis of early pulmonary tuberculosis is always a difficult problem, and among recruits difficulties are heaped on difficulties. Symptoms, either real or imaginary, lead the patient to the physician, and the latter by various examinations seeks evidence confirmatory or contradictory of his suspicions, based certainly at first on symptoms. In fact, some hold that symptoms, without physical signs, demand treatment, while physical signs, without symptoms, require only careful watching. Some recruits, as Bushnell[1] says, are so eager to go to France that they conceal the fact that they have had tuberculosis. Others may conceal it for a time in hope of being mustered out before being sent into active service on account of "developing," as they would have it believed, pulmonary tuberculosis in the line of duty. A third group may not wish to go at all, and symptoms are developed out of the whole cloth. These and still other factors cause many to believe that previous symptoms are of little weight in the diagnostic scale. Men with definitely evident symptoms at the time of examination need no mention in this discussion.

With symptoms and previous history of such uncertain value, we are thrown back on objective findings to exclude pulmonary tuberculosis from the Army. It is not my intention to discuss physical signs; but no one will deny, I am sure, that fairly extensive pulmonary disease may exist with few or no physical signs. Such instances are luckily not frequent; but slight physical signs were barely to be discovered by the method of examination I have seen practiced at Plattsburg and Camp Devens, unless hypersecretion of mucus was so located as to be discoverable on coughing.

According to Bushnell,[1] an examiner can go over twenty-five men in an hour, and in the Army could later re-examine the suspects more carefully. I have watched the procedure at Plattsburg and have practiced it at Devens, and it may be of some interest to describe it briefly as I saw it practically applied. At Plattsburg the men were of a higher order of intelligence—all were in hopes of obtaining commissions. At a certain hour the men were stripped to the waist and formed in as many lines as there were examiners, three in this instance. An orderly asked each man if he had ever had pleurisy, pneumonia, had spat blood, had cough lasting over a month, or had any tuberculosis in his family. If an affirmative reply was received to any of these questions, or if he seemed to be in poor shape, the man was requested to report later for a special examination. The men remaining in line were instructed how to exhale, cough and inhale. The chest was auscultated, after the man had coughed roughly about twenty-five to thirty times, on the front and back, in a period of from one to two minutes. If no râles were heard, the man was passed; but if râles or suspicious sounds were detected, he, too, was ordered back for special examination. These special examinations were made under more favorable conditions, and I do not believe that many men with adventitious sounds in their chests escaped detection. At Camp Devens all men with suspicious histories or suggestive physical signs or poor physique were requested to wait for their examination or a re-examination until the others had been examined. I do not wish to belittle the excellent examinations that have been and are being made in many camps; but I should like to draw attention to the fact that medical officers doing such work may grow stale; that it is very difficult to make some intelligent men cough correctly, and that it is impossible to explain the matter to an ignorant man or one who does not speak English, French or German. These conditions may be unusual, but should be considered.

For these reasons, which have no doubt occurred to every one, the value of the roentgen ray in the Army examinations has been widely discussed. Some would have had every man in our Army examined by roentgen ray, others only those with suspicious symptoms, while a third view was to reserve it for those with suspicious physical signs. If thousands of men were to be examined by roentgen ray and hundreds of thousands of dollars expended on such work, it would become necessary to show very conclusively that it was worth the price.

In the first place, our medical experience along these lines has pursued some such course as this: (1) The occurrence of symptoms; (2) the seeking of medical advice, and (3) the taking of the roentgenogram. Along this well beaten track many have passed, and our data are backed by years of experience. So far as I know, few oppose the roentgenographic study of men with suspected or even definite pulmonary physical signs, and I believe that there is a roentgen ray outfit at each cantonment to do such work. At two of the officers' training camps, however, there has been none, and we luckily had an opportunity of studying twenty-one men with physical signs, or suspicious symptoms, from the first Plattsburg encampment. To them I shall refer later.

But such experience as I have mentioned does not cover the case under consideration, for in the National Army we may assume that in from 90 to 95 per cent. of the instances we are dealing with men in apparently good health and without symptoms. What data have we of roentgenographic studies of such individuals? Unfortunately, I have been able to find but one study, and that only on fifty physicians and medical students. This study, by Hamman and Baetjer,[2] revealed by physical examination eleven as normal, eighteen with right apical signs, twelve with left apical signs and nine as having both sides involved. A study of the physical examinations as published showed only one or two with the indeterminate râle, but a large number with fine râles, slight dulness or some variation from normal of the breath sounds. The plates taken were flat plates, and the results as published would not, in the light of our knowledge of today, suggest strongly that more than two of the forty-six persons examined by the roentgen ray had definite roentgenographic evidence of pulmonary tuberculosis. Major Baetjer has been good enough to let Mr. Sampson and myself go over some of these plates. When we compared them with our own and with those of Major Cole we found that in the main all of us agree, for, as already mentioned, Baetjer had found only two definite cases.

---

[1] Bushnell: Am. Rev. Tuberc., 1917, 1, 325.

[2] Hamman, Louis, and Baetjer, F. H.: Pulmonary Physical Signs and Roentgen-Ray Findings in Healthy Adults, Arch. Int. Med., November, 1914, p. 757.

It is unnecessary for me to point out that roentgen ray plates are shadowgraphs; that the flat plate is the summation of all the shadows that lie in each plane of the rays, and that stereoscopic plates resolve more or less these summations of shadows into their constituent shadows, and at times cause to disappear what might have been considered to be an increase over the normal shadows.

To establish a norm in roentgen ray work is most important. Many have become very expert in reading flat plates; and indeed all the original work was done with flat plates. However, in very early cases slight shadows are often puzzling, and shadows lying under a rib are often difficult of interpretation. The stereoscope aids greatly in this, for the shifting of the tube separates some shadows from those of the ribs and clavicle, and a thickened root shadow may resolve into normal constituents. I have mentioned these facts because there has been much difference of opinion. Some have held that in Army work only stereoscopic plates should be made, together with a flat plate taken in the opposite direction. Another group has affirmed that a single flat plate is sufficient.

Major Cole,[3] whose untiring efforts in the interest of this work cannot be too highly praised, took roentgenograms of 100 men to determine if one flat plate would reveal lesions sufficiently gross to arouse the question of possible rejection. Posterior-anterior stereoscopic and flat anterior-posterior plates were taken and it was decided that the single flat plate was sufficient for work in which only gross lesions need to be detected. It should, however, be borne clearly in mind that many are just as sure that in the study of a patient stereoscopic plates are always to be desired, for the reasons previously mentioned. Fortunately, they are not necessary here, for they require five times as long to take, develop and read as a single flat plate. The same objection applies more fully to the use of the fluoroscope, which, in view of its uncertainties of interpretation and other objections, seemed to be unsuitable for this work.

STUDIES OF THE NEW YORK NATIONAL GUARD

This study of 100 men was made on some members of the Twelfth Regiment of the New York National Guard, which had seen service on the Mexican border and had been subjected to several examinations by Army medical men.[4] Some of them, however, had been recruited since the regiment returned from the border. While the physical examination of the lungs may not have been as searching as if performed by lung specialists, nevertheless the strict requirements, such as the requirement of weight, must have ruled out many doubtful recruits. It was, however, decided to subject these 100 men to a careful, independent, comparative study of the roentgen ray and pulmonary physical findings. Dr. James Alexander Miller, with a staff of able assistants, made the examinations. In all, roentgenograms of 100 men were taken, and in ninety-two cases the plates were satisfactory for study. Six men were roentgenographically positive for tuberculosis, one possibly had sarcoma, and one possibly Hodgkin's disease. In one the presence of a cavity was entirely overlooked by the physical examiners, and three men showed physical signs without roentgenographic findings. The physical examination and the roentgenogram agreed in five cases, and all eight were rejected. Major Baetjer (and a number of others, among them J. A. Miller, E. R. Baldwin and H. W. Biggs) agreed with Major Cole's interpretation of those plates that showed tuberculous changes.

It is easy to come to the conclusion, after a study of these results, that if only from 4 to 6 per cent. of the men recruited were proved tuberculous and liable to relapse, the number was great enough to justify considerable expense to exclude them from the Army. In 600,000 men, for example, 4 per cent. would total 24,000, and the pensions such men would and should receive might easily run into the millions of dollars.

These facts were presented to Governor Whitman, who has ever had a keen grasp of public health matters, and he set aside $1,500 for a study of a thousand men in the Sixty-ninth Regiment of the New York National Guard. Major Cole was again in charge of this study, and was assisted by Major LeWald and a number of other experienced men. It was hoped by this experiment to demonstrate the posibility of taking plates of every soldier in the National Army, and to do so as rapidly as the physical examination of the lungs could be made.

The study showed that with two staffs or groups of roentgen ray men a thousand plates could be taken, developed and read in a day. The work would be rough, but many lesions would no doubt be revealed that would otherwise escape detection, and I refer not only to pulmonary lesions, but to osseous, vascular and cardiac lesions as well. The mechanical detail of this work will no doubt be reported by Major Cole at some later time. In the plates of 1,030 men of this regiment, about 1,000 were useful for study. Of these, thirty-four were found to have such definite parenchymatous shadows that Major Cole and Lieutenant Allison would advise rejection. The plates of thirty-two others strongly suggested definite tuberculous lesions. Baldwin, Heise, Sampson and I went over these plates very carefully, and on account of changes which we interpreted as old lesions, would reduce Cole's figure of thirty-four to twenty-eight, and add the six to the doubtful cases, making thirty-eight. These six cases and some of the other doubtful plates, had they been found in patients with symptoms, could have been interpreted, no doubt, as showing definite tuberculous changes. Dr. H. M. Biggs and Major Lewis Connor agreed in the main with these interpretations.

The physical examination of these men was undertaken by a group of good clinicians under Major Connor of Cornell. The results of their examinations was most interesting. Of the entire regiment (about 2,200 men), they certified six for rejection on account of pulmonary tuberculosis. Of these six, four showed lesions in the roentgen ray plate and were rejected, while the other two had negative plates and were accepted. Of the four rejected, only one fell in the group of the thousand already examined by roentgen ray, and his plate revealed advanced disease. In other words, in the 1,000 men examined by roentgen ray, thirty-four (accepting Cole's readings) were positively tuberculous and should have been rejected, but on physical examination only one was discovered. At Dr. Biggs' suggestion, Major Connor and his assistants re-examined twenty-six of these thirty-three men. The others were away or in the hospital and could not be re-examined. The men were of course all made to cough, and each was examined by three physicians. Abnormal physical signs were discovered in one or more men, and they were rejected. Three others were rejected also on the history of previous symptoms.

---

[3] Major Lewis Gregory Cole is chairman of the Committee on Roentgenology of the Medical Advisory Board of the National Council of Defense.

[4] This study of members of the New York National Guard was made possible through the *interest* and cooperation of General Stotesbury and Major Berry of the New York National Guard. It was conducted under the auspices of the Subcommittee on Tuberculosis of the Medical Advisory Board of the National Council of Defense. To the suggestions of the chairman of this committee, Dr. H. M. Biggs, many of the studies are due.

This great discrepancy between roentgenograms and physical signs emphasizes the fact either that in apparently healthy men, shadows on roentgenographic plates do not bear the same significance that they do in patients with symptoms, or that in many apparently healthy men roentgenographic study will reveal tuberculous pulmonic changes before symptoms of such intensity as to attract attention arise and long before physical signs indicative of pulmonary disease are to be discovered. The latter assumption may explain those sad cases in which the patients suddenly develop extensive physical signs and pass, so to speak, at a bound from a stage of doubt to a stage of well developed disease. It might be argued, as it has been, I hear, in the West, that in those doubtful cases a very rigorous training at first would soon suffice to bring out the fact whether or not tuberculosis was present in a cryptic form. No doubt this would happen, and there is no doubt, too, that a man useful to society and self-supporting in his occupation would be rendered thereby an invalid and at times a public charge. The question, then, concerns not only the Army but also the whole body politic.

COMPARISON OF FINDINGS

Reference has been made to the examination of the men at Plattsburg who, during the first encampment, were examined at or near its close. These men had been subjected to all the physical exercise incident to active service, and probably more, but had not been exposed to much inclemency of weather, such wetting and chilling as occurs, for instance, on the Belgian front. What a wealth of information on the relation of roentgenographic shadows to tuberculosis and exercise we should have had if a roentgenogram of every man had been made! How much good to our future generations might have resulted if we are to subject all our boys to military training! At the first Plattsburg camp about 4,445 men were examined, and twenty-one were referred to Mr. Sampson for roentgen ray examination. Of these, nine were found to have definite parenchymatous lesions, and three were later disqualified for service abroad; but only three were rejected, while three received no commission but were dropped and were not rejected. All these men were examined near the end of their training, and probably some men with positive cases had already resigned.

It is of great interest to compare the roentgenographic findings in these men with those discovered by Baetjer in his forty-six and by Cole in his thousand. The majority of the Plattsburg men had definite physical signs, some fairly extensive. The roentgenograms of the nine positive cases all showed a definite parenchymatous lesion, while a study of Baetjer's cases revealed only two with such a lesion. In Cole's thousand cases we find thirty-four (or twenty-eight) with such lesions. Granting that had Hamman and Baetjer's patients been recruits they would have been rejected by physical signs and roentgenograms, 2 or 4 per cent., or even 1 or 2 per cent., it is interesting to compare these figures with the others, 0.2 per cent. for the Plattsburg cases and 0.4 per cent. for the Sixty-ninth Regiment.

These, so far as I can determine, are the direct data on which we must form our opinion as to the value of the roentgen ray in pulmonary tuberculosis in the Army.

Mr. Sampson and I have attempted to compare some of our definite cases at Trudeau with these. We selected ten patients with as early parenchymatous lesions as we could find, and found that only three of them had never had tubercle bacilli in the sputum. We then replaced these by three others who had had positive sputum. It is not an easy matter to separate these plates from those of Baetjer or Cole, for they are all much alike. It might be argued from such plates that they mean little without symptoms, and much with; that the owners have a tuberculosis that only by chance becomes clinical and of moment, and that hence it is a good chance that such plates are of small import. It is of interest to note that these plates all fall in that group of Bushnell's which he says must depend on positive physical findings for rejection. Of our ten patients, only three had moderately coarse râles, and so seven would have been passed, of whom some had tubercle bacilli in their sputum within two months of the time of examination. It is curious, further, that we do not see more of such cases, when we take plates of patients with slight or no symptoms, on account either of their nervousness or of possible exposure to infection. The great incidence of pulmonary tuberculosis between the ages of 21 and 31 should also be kept in mind.

To consider this problem from a business standpoint is interesting. Whether or not we accept as correct Major Connor's decision to reject four more men out of the thousand of the Sixty-ninth Regiment examined roentgenographically, we cannot deny that the roentgen rays led him to the consideration of this step. If he was right, and I am convinced that he was, the roentgen ray plates led to the detection of 0.2 per cent. more men with tuberculosis than were discoverable by careful physical examination. If we conclude that these men would have broken down with pulmonary tuberculosis either during training or on active duty overseas, we can readily see what an economy would result were such methods with similar results to be applied to the whole National Army. If we accept the number of men in camps as 1,000,000, 0.2 per cent. would be 2,000 men. It is easy to see how their pensions and keep would mount up if, say, they lived five years, and cost the country in pensions and maintenance $1,000 a year. The total would be $10,000,000, or 5,000 times what it would have cost to prevent the development of the disease.

It is taken for granted that each cantonment has an expert roentgenographer to examine all suspected patients among the National Army; but Major Cole is of the opinion that a rather larger percentage of the roentgenographers connected with the Army are not experts in the interpretation of roentgenograms of the lungs.

It is taken for granted that, like the French Army, our Army will have clearing stations behind the front lines, to which all soldiers with suspected pulmonary tuberculosis will be sent. Here an expert roentgenographer is as necesary as an expert in tuberculosis, or as an expert in nose and throat disease. Major Rist tells me that in the French clearing stations 90 per cent. of the men admitted as tuberculous are returned to the front as having no tuberculosis; and Major Cole has found only 10 per cent. of the men referred to him from the camps about New York City with a diagnosis of probable pulmonary tuberculosis to show evidence of it on roentgen ray plates.

It is taken for granted that all institutions to which soldiers will be sent on their return from overseas service will be equipped with efficient roentgen ray staffs. I am told that in Canada the most difficult problem is to be able to decide whether or not some soldiers returned for pulmonary tuberculosis are really suffering from it.

If these assumptions can be taken for granted, it remains for us to consider the advisability of examining by roentgen ray a large number of men in our Army. I had planned to discuss the practicability of such a measure, into which Major Cole has gone in detail. I can only say that he considers it perfectly practicable and no more time consuming, and even much less, than the physical examinations made as I have described. The expense for each man amounts to the pay for a private for one day—one dollar. The question of storage is of no moment, for 45,000 plates can be stored on shelves about a room 15 feet square.

CONCLUSIONS

To summarize the many reasons that have been assigned for using roentgen ray plates in the examinations of the National Army, it may be said that among others they are:

1. To accept men with acute and nonimportant bronchitis whose physical signs may simulate those of pulmonary tuberculosis.
2. To reject men with advanced pulmonary tuberculosis whose physical signs suggest a slight lesion.
3. To verify the presence of lesions indicated by physical signs.
4. To detect deep seated acute or subacute pulmonary tuberculosis when only indefinite physical signs exist.
5. To reveal various nontuberculous pulmonary diseases in early stages.
6. To detect and verify cardiac, arterial and osseous changes.
7. To reveal old basal pleurisies.
8. To establish a permanent record of each soldier.

The value of antityphoid vaccination had not been conclusively proved by Sir Almroth Wright's work in South Africa, according to a recent statement by the late Major Janeway, and it remained for Colonel Russell of the United States Army, by his work with the vaccine on the Mexican border, to establish its great scientific and practical value. Objections to the use of the roentgen rays in the United States Army have been made for the reason that this is no time for scientific experimentation. It is inconceivable that Colonel Russell's work encountered no opposition, but it has been the means of saving thousands of lives. It was a scientific experiment based on sound premises and redounds to the glory of the United States Army. Some venture to believe that today the premises on which the use of the roentgen ray in the Army depends are sound and everyone wishes to see the Army win new laurels by demonstrating its value. This brings us to the important point of reliability of roentgenograms. That some lesions may escape detection may be granted, for the time being. That the shadows we accept as definite for pulmonary tuberculosis can be simulated by those of other diseases cannot be denied; but they do so so rarely that we may disregard them. This leads us, for example, in Cole's cases, to a diagnosis of parenchymatous pulmonary tuberculosis in thirty-four (twenty-eight) cases undiagnosed by ordinary clinical examination. The results at Plattsburg would lead us to suppose that most of these men will go through training in good shape. What will happen when life in rainy weather in flooded trenches begins is only conjecturable. Rhinitis, coryza and bronchitis are, from all accounts, very frequent. The injurious effects of repeated severe colds, whether due to adsorption of antilytic substances in the blood by the various organisms which may penetrate into the blood stream under such conditions and so subject the latent focus to lysis, or to other causes, the fact remains that repeated attacks of these minor ailments do bring about relapse in some patients with pulmonary tuberculosis. From our studies of patients with parenchymatous lesions, we fear greatly that the subjection of the men to such conditions may result disastrously, and we would hesitate to recommend men having such plates for overseas service. Such beliefs are based on a study of plates taken of persons with symptoms either real or imaginary. For the benefit of future drafts, for the benefit of the whole civil population, I feel that I cannot urge too strongly that roentgenograms be taken of at least 10,000 men of the National Army. I would not suggest now that men with only parenchymatous roentgen-ray lesions be discharged at this time, but that a future study of the results of the strain of army life on this group and on the group without roentgen-ray pulmonary changes be made and definite conclusions drawn, conclusions which will, I believe, be of great value.

Report of Bureau of Mines.—The annual report of the director of the Bureau of Mines for the fiscal year ended June 30, 1917, among other things, sets forth prominently the work and researches of the bureau on problems connected with preparation for and prosecution of the war. Among them are problems relating to the nitrate supply, raw materials for sulphuric acid, war gases and gas masks, nickel, manganese, mercury and potash supplies, petroleum products, coal, explosives, etc.——Among the more important achievements of the year were the following: More than 4,800 miners were trained in mine rescue and first aid work, covering twenty-three states. By the end of the year 46,873 miners had been trained by the bureau since its organization. Sixty-three accidents, fifty-seven of which were at mines, were investigated, and 103 men were rescued. At nineteen of the sixty-three accidents, breathing apparatus was worn. Twenty-two rescue and first-aid contests were held throughout the country. More than 39,000 miners attended lectures on these subjects. An interesting finding from tests made is that lime can be used instead of caustic soda in the regenerators of oxygen breathing apparatus. Further improvements have been made in the Gibbs oxygen breathing apparatus. First aid methods and materials, as well as mine-rescue methods, were revised and standardized. Other studies relating to mine safety concerned explosive dusts and gases, permissible explosives and mined fires.

NATURE AND TREATMENT OF WOUND SHOCK AND ALLIED CONDITIONS

[EDITORIAL NOTE.—In August, 1917, the Medical Research Committee (Great Britain) appointed a Special Investigation Committee to undertake the coordination of inquiries into surgical shock and allied conditions, with a view to the better correlation of laboratory and clinical observations. The following were asked to serve on this committee:

Prof. E. H. Starling, M.D., F.R.S. (Chairman).
Prof. F. A. Bainbridge, M.D., F.R.C.P.
Prof. W. M. Bayliss, D.Sc., F.R.S.
Prof. W. B. Cannon, M.D. (Harvard University).
Lieut.-Col. T. R. Elliott, M.D., F.R.S., R.A.M.C.
John Fraser, M.D., F.R.C.S. (Edin.).
Prof. A. N. Richards, Ph.D. (University of Pennsylvania).
Prof. C. S. Sherrington, M.D., Sc.D., F.R.S.
Col. Cuthbert Wallace, C.M.G., F.R.C.S.
H. H. Dale, M.D., F.R.S. (Secretary).

The first report on "Intravenous Injections to Replace Blood" was published as a special Bulletin, Nov. 25, 1917. The second, on "Investigation of the Nature and Treatment of Wound Shock and Allied Conditions," given herewith, was issued for official use, Dec. 25, 1917, and Sir Walter Fletcher, secretary of the Medical Research Committee, has given his consent to the publication of the papers in The Journal, as has also the military censor.

In sending the report, Dr. Cannon writes:

> "The work was done in a casualty clearing station a few miles from a part of the line where there has been constant fighting for three years with scarcely any change. Only the most serious cases which could not be reasonably moved any farther back were left with us for the town was repeatedly shelled and the station was twice bombed by aeroplanes during my stay. London, with its air raids, is a Paradise by comparison."

The series includes six articles. On account of lack of space, two or three tables are omitted from The Journal. The first three articles follow in this issue of The Journal; the rest will appear next week. The complete series will be reprinted as a pamphlet, which will be sent on receipt of 10 cents in stamps.]

CLINICAL STUDY OF BLOOD PRESSURE IN WOUND CONDITIONS *

JOHN FRASER
Captain, M. C., R. A. M. C.
AND
E. M. COWELL
Captain, R. A. M. C., S. R.
FRANCE

INTRODUCTION

For a period of over two years we have been reading and recording the blood pressures in a variety of wound conditions. Certain of the observations have been sufficiently interesting to warrant their recordance.

The results may be summarized under various headings:

(*a*) Control blood pressure readings.

(*b*) The blood pressure as observed in wound conditions.

(*c*) Blood pressure readings as studied subsequent to various intravenous infusions.

(*d*) Observations on the blood pressure in the first week of convalescence.

The readings published in this paper have been made at a casualty clearing station, except where otherwise stated.

A. INSTRUMENTS EMPLOYED AND METHODS OF INVESTIGATION

We have employed several forms of mercury manometers, and of these generally the "Riva-Rocci" instrument. Lately we have been using a spring sphygmomanometer. It would appear that the mercury instruments give the most accurate readings of the systolic pressure, but it is difficult to obtain with them a correspondingly exact reading of the diastolic pressure. The spring instrument, which from a mechanical point of view cannot be as accurate as a mercury column, certainly gives a more easily appreciated reading of the diastolic or minimum pressure. A great advantage of the former is its adaptability and small compass, allowing it to be easily carried in the pocket. With this instrument, many pressure observations on recently wounded men were made in the trenches, and in the advanced dressing stations of field ambulances. In certain cases in which the peripheral pulse can hardly be appreciated, it is necessary to read the pressure by means of the stethoscope: Such readings are very accurate, and a result can be obtained when no pulse can be felt.[1] Readings have been made of the systolic or maximum pressure, of the diastolic or minimum pressure, and of the pulse pressure.

B. CONTROL BLOOD PRESSURE READINGS

A very large number of control readings were made from healthy soldiers. As was to be expected, a wide range of results was obtained. The readings of the systolic pressure were slightly lower than the records one would have accepted as normal in civil practice. Over a wide series of cases the average systolic or maximum pressure worked out at from 110 to 120, and the diastolic or minimum pressure at from 70 to 80, while the pulse pressure averaged 40 mm. We made what may be considered an interesting observation, that among soldiers engaged in the actual fighting, more especially infantrymen, the average systolic pressure worked out at a higher figure than among men of the same regiment in support, where they were only exposed to occasional fire.

It was noticed that the raised pressure of the fighting man tended to drop quickly when he was resting away from the firing line; for instance, a systolic pressure of 140 mm. dropped to 110 mm., or even to 100 mm.

---

* Discrepancies between the methods reported in this paper and those reported in later papers are accounted for by the fact that this paper had been completed and presented to the Medical Research Committee before the work which appears in the subsequent papers was begun.

[1] Latterly we have used this method to the exclusion of all others.

Observations were made on a series of pilots and observers before and after a two hours' aeroplane bombing raid: the average systolic pressure was 135 mm., and it remained constant on return. In only one case the pressure was raised by 10 mm.

The Blood Pressure as Observed in Various Wound Conditions

Pressure readings taken in the line on various types of wounds, at very short intervals after the patient had been wounded, show two distinct groups.

1. *The hypertension group*, in which the systolic pressure varies from 150 to 160 or even 170 mm.
2. *The hypotension group* (with primary shock), in which the pressure varies from 40 to 90 mm.

In the number of cases examined at this early period, there were practically none that occupied an intermediate position, that is, showing a normal blood pressure.

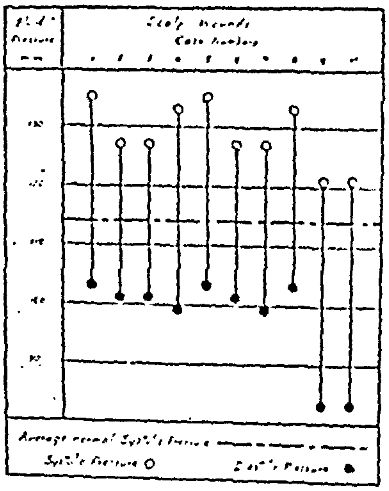


Chart 1.—Blood pressure in scalp wounds.

The pressure of patients in group 1, after resting and the journey to the casualty clearing station, gradually falls, and in the case of a normal recovery with rest in bed the systolic pressure remains at a steady level between 110 and 120 mm.

In Group 2, the patients are cold, often pulseless, and many of them suffer from severe thoracic or abdominal wounds. Occasionally the anatomic lesion appears to be entirely out of proportion to the physiologic reaction; for example, a simple bullet wound of the buttock was accompanied by a systolic blood pressure of 50 mm. at the end of the three hours.

In this group intense primary shock is present, and with the occurrence of hemorrhage, secondary shock develops and the pressure continues to fall.

Following the application of treatment, arrest of hemorrhage and pain, with rest and warmth, the blood pressure may become partially reestablished.

A. HEAD WOUNDS

1. *Scalp Wounds.*—These showed a slight elevation in blood pressure readings; all the cases which we had an opportunity of examining varied between 120 and 130 in systolic pressure, with a mean diastolic pressure of 100.

2. *Compound Fracture of Skull with Dura Intact.*—These cases showed a high systolic pressure; with one exception all the cases that we had an opportunity of examining registered a systolic pressure of 140 mm. and over. The single exception showed a systolic pressure of 100 mm., but such a low reading could be explained by the fact that associated with a very extensive fracture of the bone there was profuse hemorrhage from the meningeal and scalp vessels.

3. *Penetrating Wound of Skull, That Is, Compound Fracture, Dura Torn and Foreign Body Retained.*—On examination of these cases it was found that as a rule a low blood pressure was registered. The systolic pressure varied from 60 mm. to 112 mm. over a series of cases. It was interesting to observe that the diastolic pressure closely corresponded to the systolic pressure with a correspondingly low pulse pressure. We can offer no explanation of this feature, which was relatively constant throughout this type of case. The wounds were such as not to result in increased intracranial pressure.

4. *Perforating Wounds of Skull.*—In types of perforating wounds—that is to say, with entrance and exit wounds—the blood pressure readings could be divided into two groups, one in which the systolic reading was high, varying from 310 to 170 mm., and a second group in which the readings were low, varying from 100 to 110 mm. This subdivision corresponds to a certain anatomic distribution. The first group of high pressure readings consisted of those in which the through-and-through wounds involve the ventricles, and were accompanied by hemorrhage into the cavities of the ventricles.

In the second group the wounds had involved the brain more or less superficially, and generally occurred in varying axes of the frontal and occipital regions.

Daily readings in patients recovering after operation for the second type of wound show that the systolic pressure is maintained at a constant level of from 110 to 120 mm. as long as convalescence is uncomplicated. The onset of meningitis is accompanied by a rise of blood pressure corresponding to the increase in the intracranial tension.

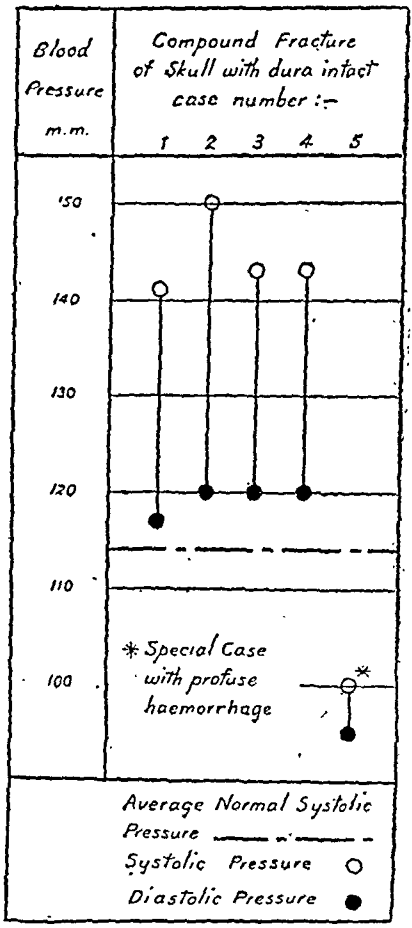


Chart 2.—Blood pressure in compound fracture with dura intact.

5. *The Effect of Anesthesia on the Blood Pressure Readings of Head Wounds.*—It was in regard to answering this question that our attention was first directed to blood pressure readings in various wound

---

2. As the result of further observations made in the front line trenches, the pressures of early wounded are divided into three groups (Cowell, E. M.: Initiation of Wound Shock, The Journal A. M. A., to be published): (*a*) Trivial wounds, in which there is no alteration in pressure or tension. (*b*) Moderately severe and not immediately endangering life, in which there is no primary *shock*, but in certain circumstances *secondary* shock develops. (*c*) Severe wounds, in which unavoidable primary shock is *present.*

NATURE AND TREATMENT OF WOUND SHOCK AND ALLIED CONDITIONS

[EDITORIAL NOTE.—In August, 1917, the Medical Research Committee (Great Britain) appointed a Special Investigation Committee to undertake the coordination of inquiries into surgical shock and allied conditions, with a view to the better correlation of laboratory and clinical observations. The following were asked to serve on this committee:

Prof. E. H. Starling, M.D., F.R.S. (Chairman).
Prof. F. A. Bainbridge, M.D., F.R.C.P.
Prof. W. M. Bayliss, D.Sc., F.R.S.
Prof. W. B. Cannon, M.D. (Harvard University).
Lieut.-Col. T. R. Elliott, M.D., F.R.S., R.A.M.C.
John Fraser, M.D., F.R.C.S. (Edin.).
Prof. A. N. Richards, Ph.D. (University of Pennsylvania).
Prof. C. S. Sherrington, M.D., Sc.D., F.R.S.
Col. Cuthbert Wallace, C.M.G., F.R.C.S.
H. H. Dale, M.D., F.R.S. (Secretary).

The first report on "Intravenous Injections to Replace Blood" was published as a special Bulletin, Nov. 25, 1917. The second, on "Investigation of the Nature and Treatment of Wound Shock and Allied Conditions," given herewith, was issued for official use, Dec. 25, 1917, and Sir Walter Fletcher, secretary of the Medical Research Committee, has given his consent to the publication of the papers in The Journal, as has also the military censor.

In sending the report, Dr. Cannon writes:

> "The work was done in a casualty clearing station a few miles from a part of the line where there has been constant fighting for three years with scarcely any change. Only the most serious cases which could not be reasonably moved any farther back were left with us for the town was repeatedly shelled and the station was twice bombed by aeroplanes during my stay. London, with its air raids, is a Paradise by comparison."

The series includes six articles. On account of lack of space, two or three tables are omitted from The Journal. The first three articles follow in this issue of The Journal; the rest will appear next week. The complete series will be reprinted as a pamphlet, which will be sent on receipt of 10 cents in stamps.]

CLINICAL STUDY OF BLOOD PRESSURE IN WOUND CONDITIONS*

JOHN FRASER
Captain, M. C., R. A. M. C.
AND
E. M. COWELL
Captain, R. A. M. C., S. R.
FRANCE

INTRODUCTION

For a period of over two years we have been reading and recording the blood pressures in a variety of wound conditions. Certain of the observations have been sufficiently interesting to warrant their recordance.

The results may be summarized under various headings:

(*a*) Control blood pressure readings.

(*b*) The blood pressure as observed in wound conditions.

(*c*) Blood pressure readings as studied subsequent to various intravenous infusions.

(*d*) Observations on the blood pressure in the first week of convalescence.

The readings published in this paper have been made at a casualty clearing station, except where otherwise stated.

A. INSTRUMENTS EMPLOYED AND METHODS OF INVESTIGATION

We have employed several forms of mercury manometers, and of these generally the "Riva-Rocci" instrument. Lately we have been using a spring sphygmomanometer. It would appear that the mercury instruments give the most accurate readings of the systolic pressure, but it is difficult to obtain with them a correspondingly exact reading of the diastolic pressure. The spring instrument, which from a mechanical point of view cannot be as accurate as a mercury column, certainly gives a more easily appreciated reading of the diastolic or minimum pressure. A great advantage of the former is its adaptability and small compass, allowing it to be easily carried in the pocket. With this instrument, many pressure observations on recently wounded men were made in the trenches, and in the advanced dressing stations of field ambulances. In certain cases in which the peripheral pulse can hardly be appreciated, it is necessary to read the pressure by means of the stethoscope: Such readings are very accurate, and a result can be obtained when no pulse can be felt.[1] Readings have been made of the systolic or maximum pressure, of the diastolic or minimum pressure, and of the pulse pressure.

B. CONTROL BLOOD PRESSURE READINGS

A very large number of control readings were made from healthy soldiers. As was to be expected, a wide range of results was obtained. The readings of the systolic pressure were slightly lower than the records one would have accepted as normal in civil practice. Over a wide series of cases the average systolic or maximum pressure worked out at from 110 to 120, and the diastolic or minimum pressure at from 70 to 80, while the pulse pressure averaged 40 mm. We made what may be considered an interesting observation, that among soldiers engaged in the actual fighting, more especially infantrymen, the average systolic pressure worked out at a higher figure than among men of the same regiment in support, where they were only exposed to occasional fire.

It was noticed that the raised pressure of the fighting man tended to drop quickly when he was resting away from the firing line; for instance, a systolic pressure of 140 mm. dropped to 110 mm., or even to 100 mm.

---

* Discrepancies between the methods reported in this paper and those reported in later papers are accounted for by the fact that this paper had been completed and presented to the Medical Research Committee before the work which appears in the subsequent papers was begun.

[1] Latterly we have used this method to the exclusion of all others.

Observations were made on a series of pilots and observers before and after a two hours' aeroplane bombing raid; the average systolic pressure was 135 mm., and it remained constant on return. In only one case the pressure was raised by 10 mm.

THE BLOOD PRESSURE AS OBSERVED IN VARIOUS WOUND CONDITIONS

Pressure readings taken in the line on various types of wounds, at very short intervals after the patient had been wounded, show two distinct groups.

1. *The hypertension group*, in which the systolic pressure varies from 150 to 160 or even 170 mm.

2. *The hypotension group* (with primary shock), in which the pressure varies from 40 to 90 mm.

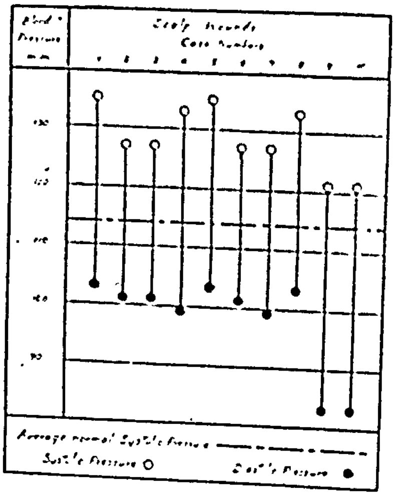


Chart 1.—Blood pressure in scalp wounds.

In the number of cases examined at this early period, there were practically none that occupied an intermediate position, that is, showing a normal blood pressure.

The pressure of patients in group 1, after resting and the journey to the casualty clearing station, gradually falls, and in the case of a normal recovery with rest in bed the systolic pressure remains at a steady level between 110 and 120 mm.

In Group 2, the patients are cold, often pulseless, and many of them suffer from severe thoracic or abdominal wounds. Occasionally the anatomic lesion appears to be entirely out of proportion to the physiologic reaction; for example, a simple bullet wound of the buttock was accompanied by a systolic blood pressure of 50 mm. at the end of the three hours.

In this group intense primary shock is present, and with the occurrence of hemorrhage, secondary shock develops and the pressure continues to fall.

Following the application of treatment, arrest of hemorrhage and pain, with rest and warmth, the blood pressure may become partially reestablished.

A. HEAD WOUNDS

1. *Scalp Wounds.*—These showed a slight elevation in blood pressure readings; all the cases which we had an opportunity of examining varied between 120 and 130 in systolic pressure, with a mean diastolic pressure of 100.

2. *Compound Fracture of Skull with Dura Intact.*—These cases showed a high systolic pressure; with one exception all the cases that we had an opportunity of examining registered a systolic pressure of 140 mm. and over.

The single exception showed a systolic pressure of 100 mm., but such a low reading could be explained by the fact that associated with a very extensive fracture of the bone there was profuse hemorrhage from the meningeal and scalp vessels.

3. *Penetrating Wound of Skull, That Is, Compound Fracture, Dura Torn and Foreign Body Retained.*—On examination of these cases it was found that as a rule a low blood pressure was registered. The systolic pressure varied from 60 mm. to 112 mm. over a series of cases. It was interesting to observe that the diastolic pressure closely corresponded to the systolic pressure with a correspondingly low pulse pressure. We can offer no explanation of this feature, which was relatively constant throughout this type of case. The wounds were such as not to result in increased intracranial pressure.

4. *Perforating Wounds of Skull.*—In types of perforating wounds—that is to say, with entrance and exit wounds—the blood pressure readings could be divided into two groups, one in which the systolic reading was high, varying from 310 to 170 mm., and a second group in which the readings were low, varying from 100 to 110 mm. This subdivision corresponds to a certain anatomic distribution. The first group of high pressure readings consisted of those in which the through-and-through wounds involve the ventricles, and were accompanied by hemorrhage into the cavities of the ventricles.

In the second group the wounds had involved the brain more or less superficially, and generally occurred in varying axes of the frontal and occipital regions.

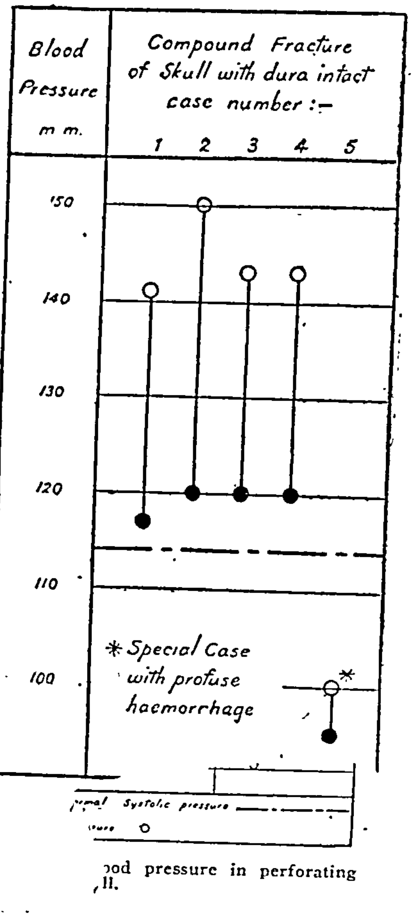


Chart 2. ɔod pressure in perforating
fracture w ,ll.

Daily readings in patients recovering after operation for the second type of wound show that the systolic pressure is maintained at a constant level of from 110 to 120 mm. as long as conva.n. …n Case 15, under the …apidly dropped to 120, …ainder of the time the … In Case 16 the press- The onset of meningitis …th the onset of a septic blood pressure corresp… intracranial tension.

…UNDS AND WOUNDS OF …XTREMITIES

5. *The Effect of* …umber of observations we have *Readings of He*…, representative of different types of answering this …). directed to blo…

---

[2] As the result of further observations made in the front line trenches, the pressures of early wounded are divided into three groups (Cowell, E. M.: Initiation of Wound Shock, THE JOURNAL A. M. A., to be published): (*a*) Trivial wounds, in which there is no alteration in pressure or tension. (*b*) Moderately severe and not immediately endangering life, in which there is no primary shock, but in certain circumstances secondary shock develops. (*c*) Severe wounds, in which unavoidable primary shock is present.

1. Compound fracture of the lower extremity, seen in the casualty clearing station, was generally associated with a considerable fall in blood pressure, more marked when the fracture affected the region of the knee joint. Undoubtedly the blood pressure reading was largely affected by the amount of hemorrhage that had occurred. One finds in such a case as Case 6—a severe compound fracture of the tibia with a very small amount of hemorrhage—a systolic blood pressure registered of 143. On the other hand, Case 4—a compound fracture in the neighborhood of the knee, accompanied by severe hemorrhage—registered a systolic blood pressure of only 30.

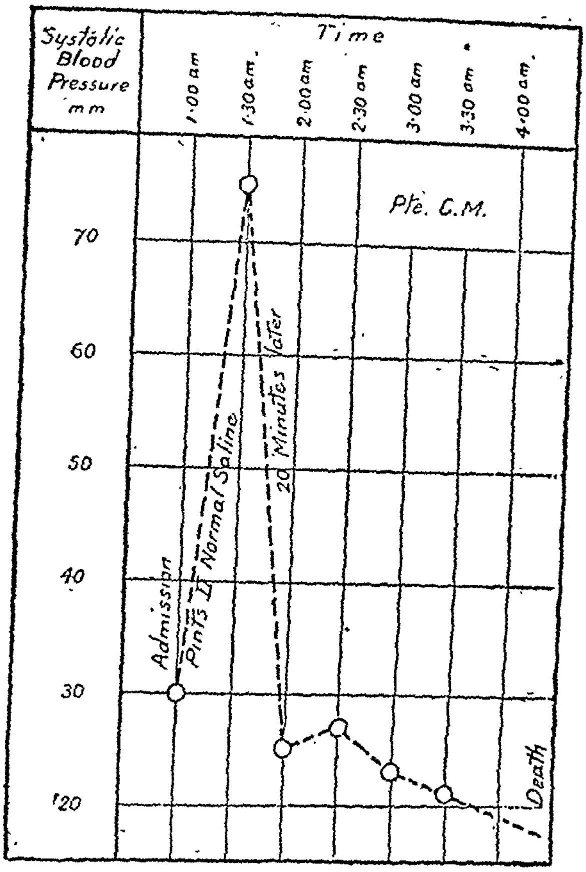


Chart 5.—Systolic blood pressure with administration of 2 pints of physiologic sodium chlorid solution.

2. One might expect compound fracture of the upper extremity to affect the blood pressure less than fracture of the lower extremity. We were surprised to find the comparatively low pressure which compound arm fractures generally registered; the remarks that are made as regards hemorrhage in wounds of the lower extremity equally apply in this connection.

3. In face wounds there is not much alteration of the blood pressure, unless there is an associated compound fracture of the face bones, when the pressure is generally lowered.

4. Multiple wounds of the body and extremities were accompanied by a considerable fall in blood pressure.

Blood Pressure Readings as Studied Subsequent to Various Intravenous Transfusions

A. PHYSIOLOGIC SODIUM CHLORID

For many years the intravenous infusion of physiologic sodium chlorid solutions (0.9 per cent. sodium chlorid) has been extensively used in shock and in collapse after hemorrhage. We confess we have been greatly disappointed with the results obtained, and blood pressure readings confirm the clinical disappointments that we have experienced. Chart 5 is typical of many that we have recorded.

Private C. M. was admitted with a simple fracture of the right humerus and a severe shell wound, involving the right knee. The wound was sustained at 9 p. m., and he was admitted to the advanced dressing station by 10 p. m. He was then in a collapsed and pulseless condition. He was treated by the application of warmth, and half a pint of physiologic sodium chlorid solution was given subcutaneously in each flank. By 1 a. m., that is, three hours after admission to the advanced dressing station, his condition was said to have so far improved as to warrant his removal to the casualty clearing station. On admission to the casualty clearing station he was found to be extremely collapsed; a radial pulse could only occasionally be felt; the systolic blood pressure barely registered 30 mm. of mercury; no diastolic pressure was read. Two pints of physiologic sodium chlorid solution were administered intravenously; immediately the systolic pressure rose to 75 mm., but after a period of about twenty minutes it rapidly began to fall, and within one hour after the administration it had fallen actually to a lower level than before the infusion had been given. There was no further rally, and death occurred about three hours later.

The blood pressure (systolic) readings are graphically recorded in Chart 5.

It would appear that the introduction of the physiologic sodium chlorid solution induced a condition of hydremic plethora—that is, a dilution and increase in the total volume of the blood. The kidneys, the skin and the lymph channels excrete the excess of fluid, there is profuse perspiration, and presently the blood is actually less in bulk and more concentrated than it was before. This is in keeping with the observations of Lazarus Barlow, who has shown that the specific gravity of the blood at first falls from 1.064 to 1.054, and later rises to 1.067; in other words, there is at first a dilution of the blood and afterward an actual concentration.

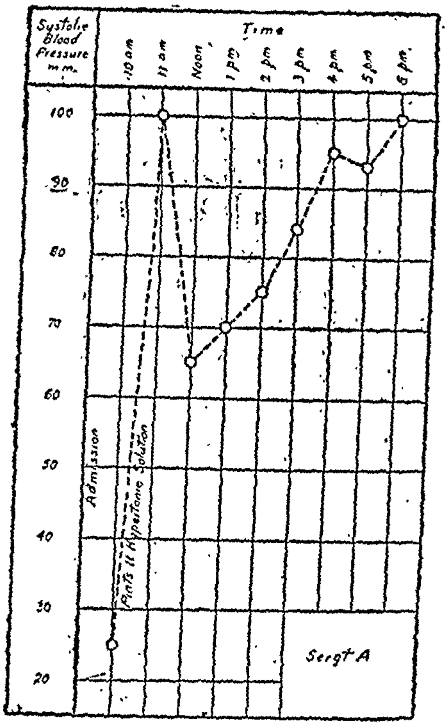


Chart 6.—Systolic blood pressure with administration of 2 pints of hypertonic solution.

B. RINGER'S SOLUTION AND ITS MODIFICATIONS

The fluid known as Ringer's solution has the following composition: sodium chlorid, 0.9 per cent.; potassium, 0.03 per cent.; calcium, 0.02 per cent., and a trace of sodium carbonate.

In place of this we have been using a hypertonic solution, as recommended in a publication of the Medical Research Committee, and constituted thus: sodium chlorid, 2 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; water, 100 c.c.

From its intravenous use we have obtained satisfactory results, and the clinical history and blood pressure chart of a typical and successful case is recorded.

Sergeant A., R. F. A., was admitted with a severe shell wound of the pelvis, injury to the bladder and prostate and profuse bleeding. On admission the respective pressures were: systolic, 90 mm.; diastolic, 60 mm. Immediate operation was necessary. Subsequently there was intense collapse—the systolic pressure registered only 25 mm., the diastolic pressure about 20 mm. Two pints of hypertonic solution were administered intravenously, and in immediate response the pressures rose, respectively, to 100 mm. and 80 mm. One hour later they had fallen to 65 mm. and 50 mm. Thereafter the pressure steadily began to rise, and six hours later it had reached 100 mm. and 80 mm.

The readings were maintained, and an eventual recovery was made.

Chart 6 graphically illustrates the blood pressure (systolic) readings in this case.

C. COLLOIDAL SOLUTION

At the suggestion of Prof. W. Bayliss and Col. Cuthbert Wallace, A. M. S., we have used intravenously in cases of hypotension due to profound shock and the toxemia of gas gangrene a solution of gum acacia.

We had first arrived at the formula we have used with undermentioned cases, when the report of the Medical Research Committee was published, March 24. The formula we employ is as follows: calcium chlorid (B. P.), 0.075 gm.; sodium chlorid, 1.325 gm.; gum acacia, 2 gm.; water, 100 c.c. A double strength solution is conveniently made and kept in sterilized bottles—sterilization should be repeated each week. This solution is made up as follows: calcium chlorid (B. P.), 13 grains; sodium chlorid, 232 grains; gum acacia, 350 grains; water, 1 pint.

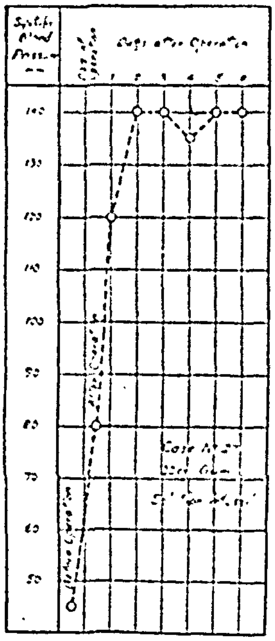


Chart 7.—Systolic blood pressure with administration of an infusion of 30 ounces of gum solution.

In comparison with the formula recommended by the Medical Research Committee, we give less sodium chlorid and more calcium chlorid, while we omit the potassium salt entirely. With this solution good results have been observed when from 15 to 20 or even 30 ounces of the solution are given intravenously. The solution was given slowly at the rate of 5 ounces in five minutes, and its heat maintained at a temperature of about 120 F. in the reservoir. It passed from the reservoir through a compte-gouttes chamber and entered the body by means of a small glass cannula tied into cephalic or saphenous veins. The infusion was repeated after twelve or twenty-four hours, if necessary.

Chart 7, taken from Case 27, is added to illustrate graphically the blood pressure (systolic) response in a successful case.

From a study of the cases quoted above it may be seen that the pressure almost invariably rises within a few minutes of the infusion being begun. This fact often enables the necessary operative treatment to be carried out, even in the worst type of case which presents itself at a casualty clearing station—such a case, for example, as shows a hypotension pulse with general collapse and associated with shock, hemorrhage and toxemia.

When it has been possible to remove the source of infection, the rise of pressure is progressive in the subsequent twenty-four hours, and the pressure is maintained during the early critical days of convalescence.

In Case 27 the patient was admitted apparently moribund. After an hour's rest with warmth and rectal glucose-saline injection, he was submitted to laparotomy; there were about 2 pints of free blood in the peritoneal cavity, and six perforations of the intestine required suture. Intravenous infusion of gum was commenced with the operation. When the operation was completed, thirty minutes later, the pressure had risen to 80 mm., and a fair pulse was palpable at the wrist. The following day the pressure was 120 mm.; it rose later to 140 mm., and remained at this figure during an uneventful convalescence.

D. DIRECT BLOOD TRANSFUSION

We have had an opportunity of observing in several cases the results of direct blood transfusion. The transfusion was necessary on account of severe arterial hemorrhage, and was carried out by the direct method, as suggested by Basset and Fullerton. The time of the transfusion varied from fifteen to twenty-two minutes. It is difficult to estimate with any degree of exactness how much blood was transferred during these respective periods, but we calculate roughly that from 500 to 700 c.c. would be about the proper estimate.

The following are the notes and the blood pressure chart of one of these cases:

Lieutenant ——, admitted with a severe shell wound of the left thigh: the femoral vessels were torn; no tourniquet had been applied, and the patient was practically moribund from loss of blood.

After the local wound had been dealt with a donor was secured, and direct transfusion of blood begun. Transfusion was continued for fifteen minutes. Clinically there was a most dramatic improvement, and within the course of a few hours the pulse rate had fallen from 150 to 95. The systolic blood pressure on admission was very difficult to estimate; but it was estimated at about 20 mm. Before the transfusion had been completed it rose to 115; one hour later it had fallen to 100. At the end of another hour it had risen to 110, and about this level it remained for the first twenty-four hours; thereafter it attained and remained at a level of about 120.

The blood pressure readings were as shown on charts.

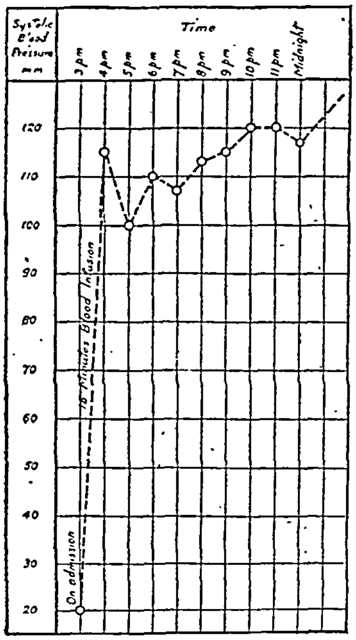


Chart 8.—Systolic blood pressure with fifteen minutes of direct blood transfusion.

E. GLUCOSE SOLUTION

We have no records of blood pressure readings following the infusion of hypertonic glucose solutions.

F. OTHER MEASURES

From time to time various drugs are advocated, such as pituitary solution, epinephrin, caffein, camphor, etc. At present there is not sufficient evidence to show that one of these drugs takes precedence over the others.

G. CONCLUSIONS

1. In cases of profound shock accompanied by loss of blood, excellent results are obtained from direct blood transfusion.

2. Injection of the calcium hypertonic gum solution will produce an immediate rise of pressure in hemorrhage cases or cases of hypotension, complicated by toxemia.

This rise may tide the patient through an operation. If the source of the infection is removed, the tension will remain supported.

3. In milder cases of shock and hemorrhage, infusion with hypertonic saline is useful.

4. Results obtained after infusion with physiologic sodium chlorid solution have been unsatisfactory.

Pressure Observations in the First Week of Convalescence as an Aid to Prognosis and to Treatment

An extensive number of pressure charts have been collected, showing the behavior of the tension not only before and during operation, but also in the first week of convalescence. We have thus a series of controls that show such complications as the onset of sepsis or gas gangrene, and illustrate the subsequent history of intravenous infusion for shock, hemorrhage and toxemia.

An uncomplicated wound running a favorable course shows a steadily maintained blood pressure. With the onset of gas gangrene or sepsis there is a sudden fall in pressure (Case 13). Occasionally a long sustained hypotension pressure reading may be observed (Cases 9 and 12), even though the patient is quite well and no sepsis is present.

A steadily rising or maintained high pressure reading, even in a severe wound, may be taken as a most favorable prognostic sign (Cases 2 and 6).

We acknowledge our indebtedness to Col. Cuthbert Wallace, C. M. G., A. M. S., and to Professor Bayliss, for repeated suggestions and assistance; to Lieutenant-Colonel Winder, R. A. M. C., and Lieut.-Col. A. H. Safford, R. A. M. C., for permission to investigate the subject; to Lieut.-Col. T. R. Elliot, R. A. M. C., and the Medical Research Committee for the various instruments which were employed in the investigation.

Dust in the Lungs.—Lehman, working with white lead dusts, found that from 35 to 43 per cent. by weight of that entering the nostrils reached the lungs, the rest either being finally swallowed or breathed, blown or sneezed out of the nares. Insoluble dusts that do reach the finer bronchioles or air cells are taken up by wandering cells or phagocytes and carried into the tissues, or by means of their sharp edges or points work their own way in and there give rise to local inflammation, followed by an increase of fibrous connective tissue, especially marked around the small blood vessels and air passages. This firm, nonelastic fibrous tissue replaces the normal, more elastic tissue and crowds and contracts the small air passages. The former prevents the normal expansion and contraction of the lungs with respiration and the latter causes dilatation of the terminal air cells due to increased resistance to expiration and hinders the normal flow of blood in the lungs, so lessening the amount of oxygen taken up by the blood and the amount of carbon dioxid given off. This slows up normal tissue metabolism and lowers the general body tone, lessening resistance to disease, especially to infections of the respiratory tract. Such fibrosed lungs yield more readily to attacks of infective bronchitis and pneumonia, and many claim also they make excellent soil for the development of tuberculosis.—Henry Field Smyth, M.D., Dr.P.H., in *Scientific Monthly*.

SOME ALTERATIONS IN DISTRIBUTION AND CHARACTER OF BLOOD IN SHOCK AND HEMORRHAGE

W. B. CANNON, M.D. (BOSTON)
Captain, M. R. C., U. S. Army
JOHN FRASER, M.D.
Captain, R. A. M. C.
AND
A. N. HOOPER
Captain, R. A. M. C.
FRANCE

Introduction

The importance of traumatic shock as a serious complicating factor of wounds and of surgical operations, and its mysterious nature, have combined to stimulate investigation into its causes and into methods of dealing with it. That investigation of shock has been difficult and baffling is indicated by the number and variety of the theories put forth to account for it. The difficulties lie not only in the obscure character of shock itself, but also in complications introduced by attendant conditions, such as hemorrhage and sepsis. Under these circumstances the most hopeful mode of obtaining insight is by gathering as many facts of observation as possible, with the chance that the facts may suggest the nature of the process or processes that are occurring.

The observations of Sherrington and Copeman[1] that intraperitoneal operations on animals raise the specific gravity of the blood, the confirmatory studies of Cobbett[2] and also of Vale,[3] indicating a concentration of the blood in conditions that induce shock, and the experiments of Mann,[4] showing that the amount of blood stagnant in the tissues of an animal in shock may be more than 50 per cent. above the amount in the normal animal—all these evidences indicate that examination of the blood might yield significant facts. Warfare provides shock cases in large numbers. At a casualty clearing station, where only the most severely wounded were admitted for treatment, we have had an unusually favorable opportunity to study their conditions, and at Col. Cuthbert Wallace's suggestion we undertook observations on the physical features of the blood in these cases. The present account is based on records of observation in ninety-eight cases of shock and hemorrhage, and in fourteen control cases.

The routine examination consisted of a count of the red blood corpuscles (referred to henceforth as "red count"), estimation of the hemoglobin by use of the Haldane hemoglobinometer, and determination of the percentage of corpuscles in the blood, either by capillary hematocrit or by larger graduated tubes, if the amount of blood permitted. When desirable to keep the blood for some time unclotted, potassium oxalate crystals were added in minimal amount; but when this was done, the hematocrit readings were made at once in order to avoid any change of corpuscle volume through the action of the added salt.

Although the blood examinations were made in a routine manner, we have kept in mind certain questions to which we hoped to find more or less definite answers:

---

[1] Sherrington and Copeman: Jour. Physiol., 1893, **14**, 83.

[2] Cobbett: Shock, in Allbutt: System of Medicine, London, 1897, **3**.

[3] Vale: Med. Rec., New York, 1904, **46**, 325.

[4] Mann: Surg., Gynec. and Obst., 1915, **65**, 380.

1. Are these changes in certain physical features of the blood peculiar to cases of shock and of hemorrhage?

2. Are there typical postoperative blood changes in these cases?

3. What are the effects on the blood of intravenous infusions?

4. May the data provided by blood examinations be helpful in prognosis?

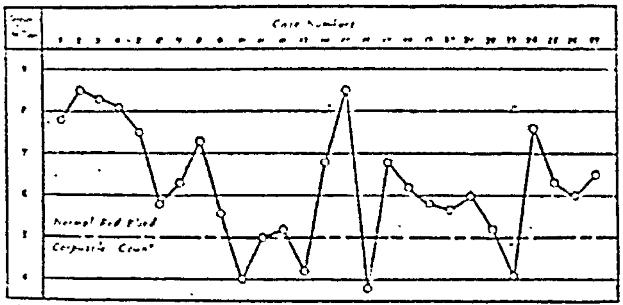


Chart 1.—Red corpuscle counts in twenty-seven cases of severe shock.

We propose to present and consider our results under these headings.

THE BLOOD CHANGES PECULIAR TO SHOCK

In discussing the blood changes in shock it will be desirable to distinguish between cases of severe or extreme shock, as seen at the casualty clearing station, and those of moderate character. To some extent the judgment of these conditions is based on an extensive clinical experience of one of us (J. F.) in connection with blood pressure determinations in shock cases.[5] Combined with this clinical judgment were pressure readings. Roughly, the moderate cases had a systolic pressure over 90 mm. of mercury, and the severe cases not over 70 mm.

The first noteworthy characteristic of the blood in shock is a high capillary red count. In Chart 1 is presented the red count in twenty-seven cases classified as severe traumatic shock. In all but eleven of the cases the count was 6 million corpuscles or higher, and in eight cases it was more than 7 million corpuscles.[6] When hemorrhage as a complicating factor tending to reduce the blood count is considered, these high counts are striking. They indicate that in shock a concentration of the blood occurs, at least in the superficial capillaries.

Whether or not the concentration found in capillary blood is true of all the blood can be determined by counting capillary and venous samples taken at the same time. When this is done, a more or less marked discrepancy between the two is revealed. The capillary samples have been taken from widely separated parts of the body—from the lobe of an ear, from a finger or from a toe; the venous samples from an arm vein. In Chart 2 are plotted the observations in seven cases of severe shock, four cases of moderate shock, and five cases in which no shock was present. The strikingly higher capillary than venous red count in the severe cases, amounting frequently to 2 million corpuscles, was reduced in the moderate cases, but even in these the difference is still nearly a million corpuscles per cubic millimeter.[7] In the final group of cases, in which no shock was present, the capillary count was uniformly slightly higher than the venous, but as compared with the results in the other two groups, the difference is neglible. These observations have been made independently by two observers. Bürker[8] states that in the same person blood from the finger tip and ear is the same with reference to hemoglobin content and red counts within an error of 1 per cent., and that blood from an elbow vein, when flowing free, is indistinguishable from that of the ear or finger. Control observations made by us on normal individuals did not reveal greater differences than 3 per cent. between capillary and venous counts; and comparative counts of capillary and venous blood taken before rising from bed in the morning proved that the discrepancy is not due merely to inactivity. From the foregoing considerations it is clear that the difference between capillary and venous red counts varies roughly with the degree of shock, and, since the venous count is approximately normal, the difference is due to concentration of the blood or stagnation of corpuscles in the capillaries.

In all probability the low temperature typical of patients in shock is an important factor in producing the increased corpuscular content of the capillaries. It is known that blood drawn from a cold finger contains a larger number of corpuscles in a given volume than that drawn from the same finger after it has been warmed.[9] In cases of shock, simultaneous counts of venous blood and samples from capillaries of the ear, the finger, and the mucous membrane of the mouth show significant differences. In one case of slight shock the venous red count was 5,360,000, the ear and finger capillary counts 6,450,000 and 6,280,000, respectively, and the buccal count 5,600,000. The capillaries of the mouth, less exposed to loss of heat than those of the skin, contained blood nearer the venous blood in concentration than did those of the skin, but still indicating stasis.

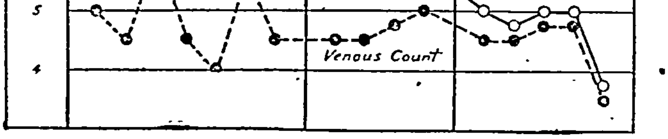


Chart 2.—Comparison of red counts, capillary and venous, in cases of severe and moderate shock, and in patients without shock.

When the capillary stagnation has become established, it does not promptly disappear. We have seen a patient who had recovered from severe shock, but whose hands from wrist to finger tips, in spite of being warmed, were still bluish-gray with stagnant blood.

---

[5] Fraser, John, and Cowell, E. M.: Clinical Study of Blood Pressure in Wound Conditions, THE JOURNAL A. M. A., this issue, p. 520.

[6] These counts were made by means of a Thoma instrument made by Hawksley; it was compared with a Thoma-Zeiss instrument, and a difference of only 10,000 corpuscles in 5,000,000 was found.

[7] Capt. E. Emerys-Roberts has reported to us verbally that he has made similar observations in cases of shock, and recently the results have been confirmed by Capt. Eric Taylor.

[8] Bürker: Tigerstedt's Handbuch der Physiologischen Methodik, Leipzig, 1912, 2, Part 5, p. 4.

[9] Gulland and Goodall: The Blood, London, 1914, p. 61.

Hematocrit determinations of the volume per cent. of corpuscles in capillary and venous blood have also been made. In each instance duplicate tests were carried out in order to avoid any error that might arise from adhesion of blood to the wall of the capillary tube. The results confirmed the discrepancy between capillary and venous samples that was found in the counts. The capillary corpuscle volume was greater than the venous by amounts ranging from 12 to 33 per cent.

TABLE 1.—VENOUS AND CAPILLARY RED COUNTS, WITH HEMATOCRIT AND HEMOGLOBIN READINGS, IN SOME CASES OF LOW BLOOD PRESSURE

Initials*	Blood Pressure		Red Counts (in millions)		Hematocrit		Hemoglobin	
	Diastolic	Systolic	Venous	Capillary	Venous	Capillary	Venous	Capillary
P. K.	34	52	3.8	5.6	—	—	—	—
A. S.	38	62	4.5	6.4	30	41	—	—
E. G.	40	64	6.2	8.5	30	47	88	113
F. H.	(near	death)	4.0	6.0	31	43	—	—
D. H.	48	64	4.2	5.5	37	41	80	95
S. D.	48	72	4.7	5.3	30	35	75	84
W. W. T.	†	50	5.3	6.4	—	—	92	98
W. C.	58	76	4.5	5.5	—	—	—	—
S. F. S.	58	80	4.9	5.3	—	—	—	—
T. R.	70	92	5.2	5.6	39	44	107	111
J. H. C.	80	102	5.8	6.9	41	45	95	105

* Further information about some of these patients may be obtained by finding these initials in Table 1, Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection.

† Irregular.

The difference between capillary and venous blood in shock was further confirmed by hemoglobin determinations. In cases thus compared, the capillary hemoglobin readings exceeded the venous by amounts ranging from 6 to 29 per cent. In the case cited at the end of the second paragraph above, the hemoglobin reading of the blood in the still abnormal fingers was 114 per cent., that of the recovered capillaries of the ear, 104 per cent.

A comparison of some of the blood counts and hematocrit and hemoglobin determinations in our cases is presented in Table 1.

As mentioned before, shock is frequently complicated by hemorrhage. In these conditions the capillary red count may be low, but when compared with the venous red count the discrepancy between the two at once appears. In other words, when hemorrhage complicates shock, the blood in the peripheral capillaries contains relatively more corpuscles in a given volume than that in the veins, though in both the number is reduced.

Observations from day to day on the capillary blood in cases of shock have shown that there is gradually a drop to normal or below in the count and in the hemoglobin and hematocrit readings. In some instances this return to normal has occurred on the second day; in others it may not have been completed for three or four days. A fairly typical case of the slower recovery is the following:

Case 69 a.—Private L. was admitted suffering from wounds of the face and arm, with fracture of skull; early gas infection, severe, moderate shock.

The red count on admission was 7,510,000; the next day it was still high (7,560,000); on the third day it fell slightly to 7,280,000, and on the fourth day it was 5,610,000. Counts made on five days during the following week disclosed no further important change. The hemoglobin and hematocrit readings likewise fell during the first three days, though not so sharply as the red count. The record is presented in Chart 3.

The influence of cold in producing stagnation or concentration of blood in the capillaries has been mentioned. It is in the capillary region that the corpuscles are most exposed to contact with the vascular wall, that is, in this region and in the finer arterioles friction is greatest, and the energy stored in the arterial pressure is mostly used up. When arterial pressure is low, as in shock, there is naturally a tendency of the blood corpuscles to gather in the place of greatest resistance.[10] And if these channels are differentiated by cold, so that some (the warmer) offer easier courses, and others (the cooler) more difficult courses for the blood to take, the accumulation of corpuscles, especially in the capillaries of the skin and limbs, may reasonably be accounted for as a partial stasis. The blood thus checked in capillary areas would be out of currency, and by failure to return to the heart would contribute to a lowering of arterial pressure.

The Blood Changes Peculiar to Hemorrhage

Many wounded men have lost much blood; they are not suffering from infection, and they appear to have only such elements of the shock complex as the hemorrhage itself may induce. The question arises as to whether under these circumstances examination of the blood discloses any features that will differentiate hemorrhage from shock.

Blood counts of hemorrhage cases show several distinctive features. The capillary red count is usually much lower than that of shock alone, but is by no means as low as the pallid appearance of the patient might lead one to suspect. In twenty-one cases classified chiefly as hemorrhage, the average capillary count at the time of admission or shortly thereafter was about 5,000,000 corpuscles, with variations ranging from 5,800,000 to 3,900,000. In a few of these cases in which the venous blood was also counted, it proved considerably lower than the capillary count. This is what might be expected, for in severe hemorrhage the blood pressure is reduced, and the cooling of the body induces stasis, just as in shock.

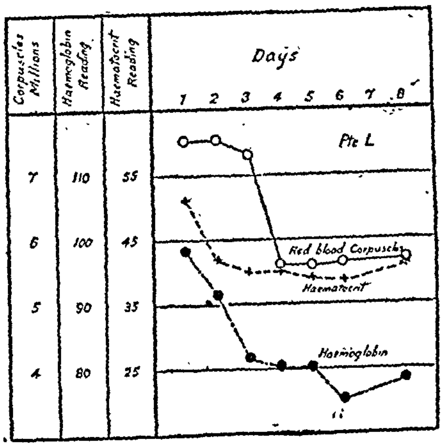


Chart 3 (Private L.).—Count of red corpuscles, with hematocrit and hemoglobin readings.

Another feature of hemorrhage that seems fairly characteristic is a relatively low hemoglobin reading. In the twenty-one cases of hemorrhage, the hemoglobin percentage was 72. If a count of 5,000,000 corpuscles is taken as normal, the color index would be only 0.72, and even with 6,000,000 taken as normal, the index is only 0.9. In shock cases the index is aproximately 1, with 6,000,000 corpuscles regarded as the normal number.

The primary reduction in the count and in the hemoglobin percentage in cases of hemorrhage is followed

---

10. Cohnstein and Zuntz: Arch. f. d. ges. Physiol., 1888, 42, 326.

by a further fall. The following instance is illustrative:

Private G. was admitted with severe wounds of the left leg. Both tibial vessels were severed, and there had been profuse bleeding. There was marked pallor of all cutaneous and mucous surfaces. The blood examinations on admission and on successive days disclosed a fall, and later the beginning of recovery. On admission the red count was 5,100,000, the hemoglobin 68 per cent. For the next three days both figures fell; on the third day the red count was 3,070,000, the hemoglobin 39 per cent. This tendency continued, but at a slower rate, until the sixth day, when the count was 1,900,000 and the hemoglobin 35 per cent. From this point a betterment began, and on the eighth day the count was 2,550,000, the hemoglobin 38 per cent. On the fifth day there were present in the blood film very small cells resembling microcytes. Throughout the examination no poikilocytosis was observed.

We have had several opportunities of confirming, on men who have served as donors in the transfusion of blood, the changes seen in the foregoing case. In these conditions there could be no question of shock or sepsis. The initial red count of the case illustrated in Chart 4 was 5,600,000, the hemoglobin 102 per cent. Transfusion was performed by the direct method, and it was estimated that about 700 c.c. of blood passed from the donor. Some hours later the capillary count was still high, 5,700,000, but the hemoglobin reading had fallen to 88 per cent. The changes during the next few days are shown in the chart. The typical posthemorrhagic fall occurred, but the hemoglobin was relatively lower than the count. In shock cases with hemorrhage as a noteworthy feature, there is usually a relatively low hemoglobin content of the blood.

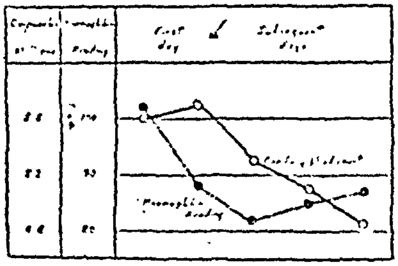


Chart 4.—Red count and hemoglobin percentage in a case of hemorrhage.

We may infer from the foregoing evidence that a low hemoglobin reading is highly suggestive of a hemorrhage's having occurred.

Postoperative Blood Changes

Tracing the course of blood changes in shock cases has led to numerous observations being made both before and after operation. In all these cases the operation was performed with warmed ether as the anesthetic. The results of the observations may be thus summarized:

(*a*) When an operation is associated with considerable bleeding, both hemoglobin and red count are reduced; but, as in the hemorrhage cases, the hemoglobin falls relatively more than the count. This observation has been confirmed in numerous instances. The following case is illustrative:

Case 18 a.—The patient had a severe compound fracture of femur. Before admission the hemorrhage had been slight; the red count was 5,600,000, hemoglobin 90 per cent. The necessary operation was accompanied by much bleeding, and the count then was 4,600,000, the hemoglobin 50 per cent. The fall in the hemoglobin percentage in this case was excessive; as a rule it amounted to about 10 per cent.

(*b*) When the operative hemorrhage is slight, the count and hemoglobin reading after operation are commonly higher than before, and the longer the operation the greater the changes are likely to be. Subjoined is an illustrative case:

Case 14 a.—A patient was admitted with a wound of the abdomen through which a portion of the small intestine protruded; the intestine itself was damaged. Hemorrhage had been slight. The red count before operation was 6,400,000, hemoglobin 112 per cent. The operation was completed with a minimum of bleeding; about 1 foot of small intestine was resected. The operation lasted forty-five minutes, and at the end the red count was 8,000,000, the hemoglobin 130 per cent.

Perspiration is commonly a prominent feature of these cases during the course of the operation—a condition which suggests that the concentration of the blood that we have noted is at least in part due to loss of fluid from the body. That it is not due solely to a stasis of blood in peripheral capillaries is shown by observation of venous blood before and after operation. In one instance, in which there was profuse sweating during the operative procedure, the venous hematocrit determinations showed a rise of corpuscle volume from 32 to 40 per cent. in forty-two minutes.

A puzzling feature that may be mentioned here is the change observed in the circulating blood when a considerable quantity of blood, previously shed, but retained in one of the body cavities, is removed. The removal is followed by a marked drop in the hemoglobin percentage and in the red count. An explanation of the phenomenon is lacking; it has been repeatedly observed.

Case 41 a.—The patient had sustained a penetrating wound of the chest, with much hemorrhage into the left pleural cavity. On the day of admission the red count was 8,000,000, hemoglobin 80 per cent.; the next day the count was again 8,000,000, hemoglobin 78 per cent. On the following day 2 pints of fluid blood were aspirated from the chest. Within eighteen hours thereafter the red count had fallen to 5,000,000, and the hemoglobin percentage to 52. Twenty-four hours later the count was 4,500,000, hemoglobin 56 per cent.

In some cases operation seems to induce a fragmentation of the red corpuscles.

Blood Changes Observed After Various Injections

As means of treating hemorrhage and shock, transfusion of blood and injections of solutions of salt and of gum have been widely employed. We have made observations on the blood before and after such treatment has been tried.

A. BLOOD TRANSFUSION

From 500 to 700 c.c. of blood have been transfused from donor to recipient, either directly, artery to vein, or by means of the Kimpton tube. No diluting or chemical substance has been added to the blood. Naturally transfusion is done when the blood count is low, and, as is to be expected, a great improvement occurs in the recipient's condition. The following case illustrates the degree of improvement that may take place:

Case 100 a.—The patient had received severe multiple wounds; one leg had been blown off. The red count before transfusion was 1,900,000, hemoglobin 31 per cent. It was estimated that about 600 c.c. of blood were transfused directly from a donor. Twelve hours later the red count was 3,000,000, hemoglobin 56 per cent. Twenty-four hours later the count was 2,500,000, hemoglobin 60 per cent. Thenceforth there was steady improvement.

B. INJECTION OF GUM SOLUTION

A 7 per cent. solution of gum acacia in physiologic sodium chlorid solution has been advocated by Bayliss[11] to raise blood pressure in shock and after hemorrhage. We had occasion to note the effect of the injection of this solution on the blood count:

---

[11] Bayliss: Proc. Roy. Soc., 1916, 89, 380.

Case 64 a.—The patient had sustained a severe abdominal wound, with profound collapse. A pint of 6 per cent. solution of gum acacia was injected intravenously. Before the injection the red count was 4,500,000, hemoglobin 84 per cent. Three hours after the injection the count was 3,800,000, and the hemoglobin 78 per cent.

The persistence of the dilution of the blood in this case is noteworthy.

C. HYPERTONIC SALINE INJECTIONS

The hypertonic solution was made according to the formula: sodium chlorid, 2.0; potassium chlorid, 0.05; calcium chlorid, 0.05, and water 100. Injection of this fluid produces effects that are illustrated in the cases given.

Case 65 a.—The patient had sustained a compound fracture of femur; the limb was almost severed; there was considerable hemorrhage. In the first blood examination the capillary count was 5,290,000, hemoglobin 84 per cent.; the venous count 4,700,000; hemoglobin 75 per cent. Immediately after operation a pint of hypertonic salt solution was injected intravenously. Five hours later the capillary count was 4,600,000, hemoglobin 70 per cent.

Case 60 a.—The patient had a compound fracture of tibia and fibula, with considerable bleeding. There was early gas infection. The patient's appearance was pallid. Shortly after admission the capillary red count was 6,330,000, hemoglobin 102 per cent.; the venous count was 4,200,000, hemoglobin 94 per cent. After operation 2 pints of hypertonic salt solution were injected intravenously. Six hours later the capillary count was 4,120,000, hemoglobin 55 per cent.

It is noteworthy in these cases that the capillary red counts, some hours after the injection, were much lower than the original capillary counts, but corresponded fairly closely with the original venous counts. This change may be interpreted as a disappearance of the capillary concentration, probably due in part, at least, to improvement in the circulation. The striking feature, however, is the greatly lowered hemoglobin reading when the larger amount of the hypertonic solution was injected. Why this change occurs is difficult to explain. It is a serious disturbance in an important element of the blood, however, and suggests that care should be exercised to avoid introducing unnecessarily large amounts of hypertonic solutions.

The Value of Blood Examinations for Prognosis

Only repeated examinations of the blood are of prognostic value; conclusions cannot be drawn from a single observation. After this conditional statement we would call attention to the two following points:

A. THE SIGNIFICANCE OF CONTINUED CONCENTRATION OF PERIPHERAL BLOOD

The concentration of capillary blood, which occurs in shock, if persistent, appears to indicate an unfavorable prognosis, and an increasing concentration is a significant precursor of a fatal outcome. The interrelation between the clinical condition and the persistence of capillary concentration is illustrated in the following cases:

Case 78 a.—The patient was admitted with a bullet wound of the abdomen. Operation disclosed two perforations of the ascending colon. On admission the capillary red count was 8,300,000, hemoglobin 96 per cent. The blood was examined on each of the following four days:

July 13, red count 7,800,000; hemoglobin 104 per cent.
July 14, red count 6,600,000; hemoglobin 98 per cent.
July 15, red count 7,400,000; hemoglobin 98 per cent.
July 16, red count 7,100,000; hemoglobin 99 per cent.

During this period the clinical condition of the patient was precarious; there was restlessness, persistent thirst, and low blood pressure, with rapid pulse.

On the fifth day the capillary blood count suddenly fell to 5,200,000, hemoglobin 82 per cent.; and on the next day still farther, to 3,700,000, hemoglobin 68 per cent. This change synchronized with a striking improvement in the general clinical condition, and an uninterrupted recovery followed.

Case 14 a.—The patient was admitted with a gunshot wound of the abdomen, and perforation of the small intestine. The capillary red count was 6,489,000, hemoglobin 112 per cent. At the end of twenty-four hours the concentration had increased, and the count then was 8,700,000, hemoglobin 130 per cent. This case terminated fatally within the next twenty-four hours.

Whether the *persistent* concentration of the capillary blood is due to a circulation inadequate to establish and maintain a uniform distribution of corpuscles, or is due to some chemical alteration in the corpuscles or in the capillary walls, we do not wish at this time to consider. The observations recorded in the foregoing cases, however, we have had repeated opportunities to verify.

B. THE SIGNIFICANCE OF PROGRESSIVE DILUTION OF THE BLOOD

As previously pointed out, the intial concentration of the capillary blood normally passes away after a few days. The blood count falls as if the peripheral blood were being diluted or the stagnant corpuscles being swept away. In association with loss of blood, dilution occurs from increase of plasma, but this process also, is short lived. A dilution of the blood which continues to progress beyond the fourth or fifth day after injury is ominous, and the longer the dilution continues the more unfavorable it becomes. In the absence of repeated hemorrhage, progressive dilution signifies the presence of sepsis, and generally the involvement of the blood stream (septicemia). The following case is illustrative:

Case 4 a.—The patient was admitted with a severe wound of the buttock and high compound fracture of the femur. The daily blood examinations are recorded in Table 2.

TABLE 2.—DAILY EXAMINATIONS IN PROGRESSIVE DILUTION OF BLOOD

Day	Capillary Red Count	Hemoglobin, per Cent.	Day	Capillary Red Count	Hemoglobin, per Cent.
1	5,400,000	85	5	2,500,000	54
2	4,500,000	66	6	2,300,000	56
3	4,500,000	62	7	2,200,000	54
4	3,900,000	61	8	2,000,000	50

The local wounds were irrigated with flavine, and were doing so well that it was difficult to account for the progressive deterioration of the blood. On the eighth day the patient left our care, but we learned afterward that the deterioration continued, and eventually the patient succumbed to a septicemia.

We have recorded the foregoing case as a single instance of the progressive dilution of the blood, obscure in origin, and followed by septicemia, but we have made several confirmatory observations.

Summary

In cases of shock as seen at a casualty clearing station in conditions of warfare, the red count of blood, taken from various capillaries, is higher than that of blood taken from a vein. The discrepancy is greater the more profound the shock, and not infrequently is as much as 2,000,000 corpuscles per cubic millimeter. Since the venous count is approximately normal, the condition is due to a stagnation of corpuscles in the capillaries. The observations by means of blood counting have been confirmed by hematocrit and hemoglobin determinations.

This condition once established in shock is only gradually recovered from; the recovery sometimes requires two or three days.

After hemorrhage, and in cases of shock complicated with hemorrhage, the hemoglobin reading is relatively low compared with the red count.

After operation attended by hemorrhage, the hemoglobin reading is again relatively low compared with the count. If the operation has not been accompanied by hemorrhage, the count and the hemoglobin content of the blood may be higher than before, probably owing to loss of fluid from the body.

Transfusion of blood naturally raises both the count and the hemoglobin reading. Injection of a gum solution leads to a dilution of the blood that may persist for some hours. Intravenous administration of a large amount (2 pints) of hypertonic salt solution may markedly reduce the hemoglobin content of the blood; a smaller amount (1 pint) in our experience has not had this effect. Injection of the salt solution reduces the capillary stasis.

Continued concentration of the capillary blood for several days after injury accompanies a continued unfavorable clinical condition. Disappearance of the concentration is a signal of improvement. Continued dilution of the blood, after the fourth or fifth day, is ominous.

ACIDOSIS IN CASES OF SHOCK, HEMORRHAGE AND GAS INFECTION

W. B. CANNON, M.D. (BOSTON)
Captain, M. R. C., U. S. Army
FRANCE

Introduction

In the attempt to obtain more facts concerning the conditions that prevail in cases of persistent low blood pressure, it seemed desirable to examine the blood for certain chemical alterations. Among these were changes in the alkali reserve and in the sugar content. A reduction of the alkali reserve would be indicated specifically by less than the normal amount of sodium bicarbonate in the blood. This is the condition of "acidosis" in the sense defined by L. J. Henderson[1] and by Van Slyke and Cullen.[2] The sugar content might be significant as to the nature of the acidosis, and would also throw light on other processes in the body.

The circumstances under which these studies have been conducted required the use of simple apparatus. Fortunately, the instrument invented by Van Slyke,[3] by which the capacity of the blood plasma to take up carbon dioxid can be determined rapidly and accurately permits observations on this feature of the blood to be made even where few laboratory conveniences are available. The results given by this instrument are expressed in volumes per cent. of carbon dioxid, which the plasma holds after being exposed to an atmosphere containing 5.5 per cent. of the gas (the concentration existing in the alveoli, and present in the final air of an extreme expiration.) Any figures lower than 50 per cent. in adults indicate acidosis. In drawing the blood, a syringe was used. In most cases no difficulty was found in thrusting the needle into an elbow vein made prominent by drawing a rubber tube around the upper arm. Care was exercised not to exert such pressure when the tube was fastened as to shut off the arterial flow. As the blood entered the syringe, the piston was gently withdrawn. When sufficient blood had been taken (about 10 c.c.), the tube was loosened and the needle then withdrawn. The blood was transferred to a flask containing a few crystals of neutral potassium oxalate. Agitation of the sample was avoided. The plasma was promptly separated in a centrifuge. All utensils used were carefully washed with water, alcohol and ether. In making the determinations a check was invariably obtained, and in most cases a further exposure of the plasma to the alveolar air was made before the second reading. All the results presented have the values gained by these precautions.

The methods employed in estimating blood sugar was the easy and reliable one devised by Myers and Bailey.[4]

That the impaired circulation in cases of shock would probably lead to a condition of acidosis was pointed out by Yandell Henderson[5] in 1910. Later Crile[6] and his co-workers reported results which indicated that acidosis is present in various clinical conditions, including shock. Recently Henderson has revised his well known acapnia theory of shock,[7] and now interprets the low carbon dioxid content of the blood as probably not a primary acapnia, but as a consequence of acidosis.

The present study includes an examination of forty-seven cases of low blood pressure, whether due to shock alone or complicated by hemorrhage and gas bacillus infection (Table 1). Observations have been made on the relation of acidosis to blood pressure, pulse and respiration; the sugar content of the blood; the effects of anesthesia and operation on existent acidosis and low blood pressure, and the influence of alkaline treatment in cases of extreme acidosis.

The Relation of Acidosis to Blood Pressure, Pulse and Respiration

A. RELATION TO BLOOD PRESSURE

In forty-seven different coincident determinations of blood pressure and carbon dioxid capacity, a rough relation between the two was found. In general the lower the blood pressure the lower the alkaline reserve, that is, the greater the acidosis. This relation is illustrated in Table 2.

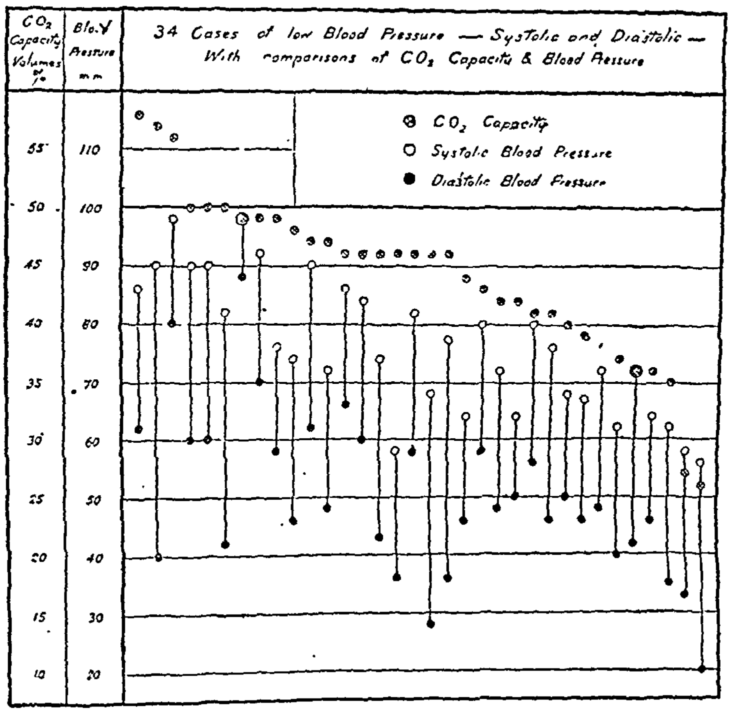
It is noteworthy that in forty of the forty-seven cases the mean blood pressure was below 60 mm. of mercury, and that in all these there was a carbon dioxid capacity less than 50 volumes per cent.—a condition of acidosis was present. Furthermore, as the average carbon dioxid capacity was low, the average mean pressure was likewise low. In the chart are presented the records of blood pressure, systolic and diastolic, in thirty-five cases of shock, hemorrhage and gas infection, arranged in the order of decreasing carbon dioxid capacity (increasing acidosis). From this group moribund patients treated with alkaline drink have been eliminated. The first six of these cases had a carbon dioxid capacity of 50 per cent. or higher, and are not to be regarded, therefore, as instances of acidosis. The remaining twenty-nine cases range roughly in correspondence with the state of the blood.

---

[1] Henderson, L. J.: Science, 1913, **37**, 389.
[2] Van Slyke and Cullen: Jour. Biol. Chem., 1917, **30**, 291.
[3] Van Slyke: Jour. Biol. Chem., 1917, **30**, 347.
[4] Myers and Bailey: Jour. Biol. Chem., 1916, **24**, 149.
[5] Henderson, Yandell: Am. Jour. Physiol., 1910, **27**, 167, 174.
[6] Crile: The Origin and Nature of Emotions, Philadelphia, 1915, p. 227.
[7] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965.

TABLE 2.—RELATION BETWEEN CARBON DIOXID CAPACITY AND BLOOD PRESSURE

No. of Cases	Carbon Dioxid Capacity	Mean Arterial Pressure
6	20 to 29 (av. 24)	49 mm. hg
8	30 to 39 (av. 35)	59 mm. hg
26	40 to 49 (av. 44)	61 mm. hg
7	50 to 59 (av. 53)	69 mm. hg



Records of blood pressure in thirty-five cases of shock, hemorrhage and gas infection, arranged in the order of decreasing carbon dioxid capacity (increasing acidosis).

In ten cases classified as uncomplicated shock, the average systolic and diastolic pressures when the blood samples were taken were 77 and 52 mm. of mercury, and the average carbon dioxid capacity was 41 per cent. In seven cases of clear hemorrhage, the relation again was 77 and 52 in blood pressure to 47 per cent. carbon dioxid capacity. And in thirteen cases with gas infection prominent, the average pressures were 70 and 43, with 38 per cent. as the average of the carbon dioxid readings. These groups are perhaps too small to permit conclusions to be drawn. The figures suggest, however, that hemorrhage alone is not attended by as great a reduction of the alkali reserve as is shock (when the blood pressures are equally reduced), and again, when the blood pressure is low, as in the cases of gas infection, the alkali reserve is likely to be correspondingly low.

These observations add another to the known similarities between hemorrhage and shock. In both, the alkaline reserve is lessened. Milroy[8] has recently pointed out that hemorrhage, experimentally induced, is attended by reduction of reserve alkali, and that thereupon exposure of the plasma to the same carbon dioxid concentration as before the hemorrhage develops an H-ion concentration considerably higher than before.

In the cases under consideration no observations were made on the H-ion concentration of the blood. Probably the concentration was not much raised when the alkali reserve was only slightly below normal. The activity of the respiratory center in some cases, however, indicated a markedly increased concentration. These conditions will be dealt with later.

From the evidence presented above, the conclusion is warranted that bodily states characterized by reduced blood pressure and consequently by defective circulation are accompanied by a diminished alkali reserve, and that as a general rule the lower the pressure the lower the reserve. This acidosis should not be compared with that which may occur acutely after a quick run or other sharp exercise. That may be quite as extreme as any change seen in shock, but it is temporary, and the alkaline stores in cells and in other body fluids than the blood may soon compensate for the sudden reduction of available alkali in the blood, and oxidative processes rapidly restore the normal conditions. In the cases under consideration, on the other hand, some process has been going on for hours (often six or eight) that has brought about the state observable at admission of the patient. The progressive character of the process was shown in a case in which the carbon dioxid capacity one hour after the wounding was 50 per cent., and five hours later, with no corrective treatment, had *fallen to 40 per cent.* The condition has a gradual rather than an acute onset.

B. RELATION TO PULSE

With low arterial pressure, a rapid pulse may be expected. In the series of cases here reported the heart was seldom beating faster than 144 per minute. Possibly that is a limiting rate for continued action. The average rates were somewhat below this number. Table 3 is arranged on the basis of increasing diastolic pressures.

Since the average pulse rates are fairly uniform for different ranges of low blood pressure, and since, as shown above, *there is a relation between the lowness of the pressure and acidosis, it follows that there is no definite relation to be found in our cases between the diminished alkali reserve and the rapidity of the heart beat.* If the pulse is considered in these cases arranged on the basis of their carbon dioxid capacity, the average rate for a carbon dioxid capacity of 24 per cent. is 136; of 35 per cent., 135, and of 44 per cent., 130.

TABLE 3.—THE RELATION OF ARTERIAL PRESSURE TO PULSE

No. of Cases	Average Pressures		Pulse	
	Systolic	Diastolic	Av. Rate	Range
5	51	23	133	114-144
9	60	35	134	108-152
13	72	44	133	112-150
8	80	55	133	116-144
7	89	62	128	106-144

---

[8] Milroy: Jour. Physiol., 1917, **51**, 272.

C. RELATION TO RESPIRATION

The chemical stimulus increasing respiration is an increase in the H-ion concentration in the arterial blood. As L. J. Henderson[9] has shown, a large amount of acid may be added to a bicarbonate solution similar in concentration to that of the blood before any considerable increase of acidity occurs, so long as the carbon dioxid passes off. The H-ions of the blood do not increase to an important degree, therefore, in spite of reduced alkali, if pulmonary ventilation prevents an accumulation of carbonic acid. Only when this process fails, or acids increase to such a degree as seriously to encroach on the neutralizing power of the bases of the blood, does the increased H-ion content affect in a marked degree the respiratory center. From a study of the alkali reserve, by the Van Slyke method, in a large number of surgical cases Caldwell and Cleveland[10] report no change of respiration when the carbon dioxid capacity was between 43 and 50 per cent., and also none between 36 and 43 per cent. when that condition was stationary; but if the reserve was *diminishing* and had reached that range, hyperpnea was almost always apparent.

The apparatus necessary to record the volume of respired air in the cases under consideration was not at hand, but the rate of breathing was taken. In some of these cases the respiratory rate was probably reduced to a greater or less degree by morphin, which was regularly administered to seriously wounded men in amounts varying from ¼ to ½ grain, with an occasional larger dosage. In Table 4, the chest cases and the abdominal cases have been omitted, for in them the pain due to respiratory movement may modify the breathing in a way complicating the influence of the blood.

As the figures show, the rate increased as the alkali reserve fell, but the change, as was to be expected, became more marked as the limit of the reserve was more nearly approached. The character of the respiration was not noteworthy except in the cases of extreme acidosis, that is, with a carbon dioxid capacity in the region of 30 per cent or lower. In some instances the breathing was deep and vigorous, as in true "air hunger," and at the rate of 40 or 50 times per minute. These conditions have been met especially in cases of infection with the gas bacillus.

TABLE 4.—RELATION OF CARBON DIOXID CAPACITY TO RESPIRATION

Number of Cases	Carbon Dioxid Capacity	Average Respiratory Rate
17	40 to 49 (av. 44)	24
7	30 to 39 (av. 35)	28
6	20 to 39 (av. 24)	44

THE SUGAR CONTENT OF THE BLOOD

Lack of food, or subsistence on a carbohydrate-free diet, as is well known, will produce a condition of acidosis marked by lowered carbon dioxid tension of the alveolar air, increased excretion of ammonia nitrogen in the urine, and the appearance of acetone bodies. The low blood pressure of shock with attendant slight urinary secretion, and the generally depressed state of the patient, render accurate studies of the urine difficult. The possibility of a "starvation" acidosis being present, however, is suggested by the fact that not infrequently men are brought to the casualty clearing station about noon who have been wounded and shocked in a night raid, and who testify to having eaten nothing since the previous afternoon. On admission to the station, they are often too ill to take nourishment. In consequence they may be without food for a time which might be expected to produce metabolic disturbance. A prime condition for "starvation" acidosis is lack of sufficient carbohydrate in the body to play a necessary rôle in the oxidation of fat, in this instance body fat which is being used as a source of energy. Determinations of blood sugar will show, therefore, whether or not a deficiency of carbohydrate prevails. In Table 5 are presented the results of observations in cases of shock and hemorrhage.

TABLE 5.—SUGAR CONTENT OF BLOOD IN CASES OF SHOCK AND HEMORRHAGE

Initials	Carbon Dioxid Capacity	Blood Sugar	Initials	Carbon Dioxid Capacity	Blood Sugar
F. W.	34	0.11	A. H. P.	47	0.10
W. B.	36	0.15	W. G.	47	0.18
O. C. R.	40	0.15 (6 hours after hit)	O. C. R.	50	0.12 (1 hour after hit)
J. B.	42	0.19	A. S.	52	0.11 (after op'n)
H. H.	42	0.22	A. S.	60	0.12 (before op'n)

From these observations it is clear, in the first place, that there is no lack of sugar in the blood; indeed, that the amount is commonly above normal—0.1 per cent. Furthermore, there appears to be no relation between variations of the carbon dioxid capacity of the blood and the percentage of sugar. In a few cases urine was obtained from shock cases and tested for acetone bodies. The test for diacetic acid was negative. The acidosis of shock cases, according to this evidence, is due to some other alteration of the blood than the development of acetone bodies.

THE EFFECT OF ANESTHESIA AND OPERATION ON EXISTENT ACIDOSIS AND LOW BLOOD PRESSURE

That anesthesia and operation are accompanied by a reduction in the alkali reserve of the blood has been shown by Crile and Menten,[11] Austin and Jonas,[12] Morriss,[13] and Caldwell and Cleveland.[10] The largest drop during operation recorded by Austin and Jonas was 10 volumes per cent. carbon dioxid capacity, as determined with the Van Slyke apparatus. The figures reported by Caldwell and Cleveland, based on a study of a large series of cases in which they used the Van Slyke method, show a drop in the carbon dioxid capacity between 4.7 and 7.7 volumes per cent. in operations averaging about fifty minutes in duration. In their series, however, no acidosis was present (except in one case), and the drop barely brought the capacity to the boundary line between normality and acidosis (50 per cent.) It is well known in civil surgical practice that patients with a low alkali reserve (as diabetics with acidosis, and children whose reserve is naturally much lower than that of adults) stand operation poorly, and may pass from anesthesia into coma and die. A highly interesting and practical question, therefore, is raised as to the influence of anesthesia and operation on wounded men with an acidosis already existent. In Table 6 are shown the results of blood tests and blood pressure readings before and after operation in cases with a carbon dioxid capacity below 50 per cent. at the start or found below that level at the end of anesthesia.

---

[9] Henderson, L. J.: The Fitness of the Environment, New York, 1913, pp. 149-151.

[10] Caldwell and Cleveland: Surg., Gynec. and Obst., 1917, **25**, 23.

[11] Crile and Menten: Ann. Surg., 1915, **62**, 262.

[12] Austin and Jonas: Am. Jour. Med. Sc., 1917, **153**, 90.

[13] Morriss, W. H.: The Prophylaxis of Anesthesia Acidosis, THE JOURNAL A. M. A., May 12, 1917, p. 1391.

Comparison of the changes in the blood of these wounded men suffering from shock and unstable circulation with those reported by Caldwell and Cleveland reveals that the average drop in carbon dioxid capacity is approximately twice that seen by them in ordinary civil cases. Furthermore, if the three cases are eliminated which at the start had a carbon dioxid capacity well over 50 per cent., the results show that the fall is likely to be greater the lower the original capacity. The encroachment on the reserve of alkali is greater, therefore, as the margin of safety in the reserve is less. In other words, the more marked the existent acidosis the more sensitive is the patient to operative procedures, and the more likely he is to be let down by them into a region of danger. In ten of the series of cases under consideration the carbon dioxid capacity before operation was 40 *per cent. or less.* The closeness of danger in such cases may be realized by the fact that blood taken from the heart at the moment of death from shock has a capacity between 20 and 24 per cent., and in two of the cases reported in Table 6 the capacity fell to 27 and 28 per cent. from an initial 46 and 41 per cent., respectively. Such profound changes may occur in about an hour. The suddenness of this remarkable fall in available alkali is in itself important, for as Caldwell and Cleveland have pointed out, the effects are more damaging when the fall is rapid than when it is slow and gradual. With regard for the baneful effect on internal respiration and on other processes of the body due to an impoverishment of the blood in alkali, it is clear that a rational treatment of shock should include provision against the dangers of this sudden depletion.

TABLE 6.—TESTS AFTER OPERATION IN CASES WITH ACIDOSIS AND LOW BLOOD PRESSURE

Initials	Duration of Operation	Carbon Dioxid Capacity		Blood Pressure	
		Before Operation	After Operation	Before Operation	After Operation
	Mins.	%	%		
S. R.	75	58	46	82-58	58-36
B. S.	40	58	46	88-62	74-42
F. A. T.	60	56	40	98-80	64-48
G. J. H. H.	45	50	44	90-62	64-46
W. C.	20*	49	40	76-58	—
J. H. C.	45	47	40	102-80	50-28
W. A. T.	60*	46	38	76-36	68-28
G. K.	50*	46	27	84-60	58-36
C. P. H.	70	41	28	76-46	—
Averages	52	50	38	83-62 (7 cases)	62-31

* Anesthetized with nitrous oxid and oxygen.

Table 6 brings out another important fact of practical importance—the striking fall of blood pressure as a result of operation in these cases. In experience with patients in whom the decrease of the carbon dioxid capacity, as a result of operation, did not extend below 50 per cent. (that is, did not develop an acidosis, in the Van Slyke sense), no noteworthy alteration of arterial pressure occurred. In fact, both the systolic and the diastolic pressure may be higher at the end of operation than at the start, and seldom is there a lowering of the mean pressure. On the other hand, if the carbon dioxid capacity falls below 50 per cent., or being below that level it sinks still lower as a consequence of operation, the blood pressure may suffer an astonishing decline. In the seven complete records in Table 6, the average fall was 88 and 62 to 62 and 36—the systolic pressure at the end of operation was commonly below the diastolic pressure at the start. This ominous sinking of the blood pressure has been repeatedly seen during operation in shock cases in which the alkali reserve was not determined; in all probability these cases should be classified with those in the foregoing list.

Marshall[14] has testified that anesthesia with nitrous oxid and oxygen is specially to be recommended in operating on men in shock, because it leaves the patient in much better condition than do other anesthetics. Crile and Lower[15] also have stated that nitrous oxid-oxygen anesthesia is less likely to increase shock than ether. In two patients in the present series, blood examination before and after operation with nitrous-oxid-oxygen as the anesthetic, there was no change whatever in the carbon oxid capacity; it remained at 58 per cent. in the one, and at 48 per cent. in the other during operations lasting forty and twenty-three minutes, respectively. That this anesthetic does not preclude a fall of blood pressure and an attendant alkali reduction is shown by the three cases in Table 6 distinguished by asterisks—patients anesthetized with nitrous oxid and oxygen. The rate of change in the second of these three, however, was less than in any of the others, and the blood pressure was only slightly reduced. The charted results presented by Caldwell and Cleveland show not quite so great a decrease of the carbon dioxid capacity under "gas" and oxygen as under ether, but they conclude that the differences under different anesthetics are negligible. The possibility that the patient anesthetized with nitrous oxid and oxygen may suffer no appreciable blood change, and also that such changes as have been recorded may be due in part to lack of skill (as in allowing the patient to become cyanosed), gives support to the judgment that it is the anesthetic to be employed when possible in operating in cases of shock.

Alkaline Treatment of Extreme Acidosis in Shock

The danger zone that shocked men are liable to enter when they are operated on is approached, as already explained, through a precipitous fall of blood pressure and a sharp decrease of the alkali reserve to a degree at which the H-ion concentration of the blood tends to increase rapidly. The harmful effects on tissue respiration and on other bodily functions that occur when the H-ions are increased have already been emphasized. Wright[16] had reported a lessening of the alkalinity of the blood in human beings and in lower animals infected with the gas bacillus, a condition which he designated as "acidemia." The evidence presented above shows that this condition is not peculiar to toxic shock with gas infection,[17] but is general for states of low blood pressure, whether due to wounds or hemorrhage, without notable infection. The toxemia is merely an additive factor. The rational treatment of patients with diminished alkali in the blood, as has long been recognized in dealing with the acidosis of diabetes, is to supply alkali. Wright suggested this therapy also for treatment of gas infection, and reported good results in two instances. Its use in combating the extreme acidosis that may follow operation on men in shock is shown by the following cases:

---

[14] Marshall: Proc. Roy. Soc. Med., 1917, **10**, 27.

[15] Crile and Lower: Anoci-Association, Philadelphia, 1914, p. 78.

[16] Wright: Lancet, London, 1917, **1**, 1.

[17] The importance of a good circulation for checking the spread of gas infection has been remarked by a number of writers on the subject. Attention has been directed mainly, however, to local tensions in the tissues and to thrombosis as the occasions for a poor blood supply. That a low general blood pressure may lie behind the local impairment should be more generally recognized.

Private J. F. J. was admitted, July 27, with multiple shell wounds of the leg, knee, right forearm, chest, and right hand. Considerable hemorrhage was probable. Before operation blood pressure was: systolic 80, diastolic 58, pulse 134, respiration 24, and not peculiar. The carbon dioxid capacity was 43 per cent. At operation the left knee was resected, about 6 inches of the right gastrocnemius removed, a long slit was made in the right forearm with excision of the flexor longus digitorum, and the ring and little fingers of the right hand, with their metacarpals, were taken away. Evidence of gas infection was found.

Shortly after recovery from the anesthesia, the blood pressure was 68 and 40, pulse 148, and respiration 34, deep and vigorous. An hour later, at 10:30 p. m., the pulse was still as before, but the respiration had risen to 48, and was as energetic as if there had been violent struggle. In spite of his wounds, the patient tried to sit up, crying, "I must have air. I can't breathe." A cannula was slipped into an elbow vein, and 35 ounces of warm 4 per cent. sodium bicarbonate were introduced. A most dramatic change at once occurred. The patient's restlessness and "air hunger" immediately disappeared, and in a few minutes he fell asleep with a pulse of 126, and quiet respirations 26 per minute. A second respiratory crisis during the night required another injection of the sodium bicarbonate solution. Alkaline treatment was continued by mouth—1 dram in 8 ounces of sweetened water every two hours. On the following morning the patient was found smoking a cigaret. In the afternoon the blood pressure was 114 and 56, pulse 132, respiration 28. The second day the blood pressure was 128 and 58, pulse 144, respiration 38, but gas infection was found in the calves of both legs. In the subsequent operation considerable blood was lost. The patient sank rapidly thereafter, and died in about three hours.

Private H. (not in tabulation) was admitted, July 27, with multiple shell wounds. There was a big opening in the left loin with fracture of the pelvis and infection of the muscles; extensive lacerations of the left thigh, the left calf, and the right calf, with gas infection; many superficial wounds of back and chest and left hand. He was operated on at 11 p. m., but records of his blood pressure were not taken. About 6 o'clock the next morning his pulse was 150, and he was suffering from typical "air hunger" with deep respirations approximately 60 a minute. He was given intravenously 2 pints of warm 4 per cent. sodium bicarbonate. He became quiet at once, and fell asleep. Alkaline treatment was continued by mouth. At 12:30 p. m. the blood pressure was 72 and 56, pulse 140, and respiration 32. The carbon dioxid capacity was 51 per cent. In the afternoon the blood pressure was 104 and 68, pulse 132, respiration 27. The condition was the same next morning, except that the blood pressure had risen to 114 and 72. The patient then began to have an oscillating fever temperature; a foot wound was found infected, and the pathologist reported a coccus in the blood. A blood destruction started, and at the end of a week the red count fell to 1,800,000, hemoglobin 30 per cent. Transfusion was done, with consequent improvement. The patient was evacuated, but died of pneumonia in a hospital at the base.

"Air hunger" in such cases is typically a signal of impending death. The results described in the foregoing records demonstrate that the desperate state of the patient suffering from the marked acidosis of traumatic and toxic shock may be so changed by intravenous alkaline therapy that with astonishing suddenness he passes from distress to comfort, and may later recover normal blood pressure. These cases also indicate, however, that the individual who has passed through such a crisis appears to have little resistance and is exposed to dangers of subsequent infection.

The development of acidosis in shock and its serious aggravation by surgical procedures suggested the desirability of using, if possible, preventive measures—increasing the chances of survival for wounded men by avoidance of critical risks. To throw light on these possibilities, the natural history of the shocked individual should be known. For the purpose of securing this knowledge, Captain Cowell went to the front trenches to study cases which were later traced through the aid post and the dressing station to the casualty clearing station. The results of this study are given in the following paper.

SUMMARY

Cases of low blood pressure due to shock, hemorrhage, or infection with the gas bacillus have a diminished supply of available alkali in the blood, that is, an acidosis. As a general rule, the lower the pressure the more marked the acidosis.

The pulse is rapid in these cases, but does not vary with the degree of acidosis.

The respiratory rate becomes more rapid as the acidosis increases until, shortly before death, a true "air hunger" may prevail.

Blood sugar is usually somewhat increased above the normal in cases of shock and hemorrhage. The acidosis in these cases, therefore, is not due to lack of circulating carbohydrate.

Operation on men suffering from shock and acidosis results in serious and rapid sinking of arterial pressure when it is already low, and in marked and sudden decrease of the alkali reserve of the blood when that reserve likewise is already low. This change may not occur if nitrous oxid-oxygen anesthesia, instead of ether, is employed, but that anesthetic affords no guarantee against the ominous decline.

Shocked men suffering after operation from extreme acidosis with "air hunger" can be quickly relieved of their distress by intravenous injection of a solution of sodium bicarbonate, and their blood pressure restored to normal.

(To be continued)

The Responsibilities of War.—Courage, fortitude, loyalty and self denial strengthen and ennoble. They are the virtues of calm weather, more eminently of days of storm and stress. War permits no flights from responsibility. Every obligation becomes more binding, both in relation to the personal life and the good of the whole—the community or state. It may seem a paradox that in time of war when life appears to be held most cheap, life and health come to be thought of as most valuable. The reason is plain. Physical vigor, physical endurance, physical power begin to have an increasing value in the minds of men. Man—the physical man—counts, and men begin to make the most of men. The attitude toward man is the same as that toward the newest kind of rifle or the latest type of cannon. What is the best kind and what characteristics are most useful. Even with our brief experience we have awakened to the nation's need for men with fewer physical defects and greater physical power. The nation is beginning to see that if there had been more interest in public health in time of peace there would be now less need for long months of training for endurance of necessary hardships incident to camp life.—Oscar Dowling, M.D., *Quart. Bull.*, Louisiana State Board of Health, December, 1917.

Special Article

SYNTHETIC DRUGS *

JULIUS STIEGLITZ, Ph.D., Sc.D., Chem.D.
Professor and Chairman, Department of Chemistry, and Director of the Laboratories, University of Chicago; Chairman, Subcommittee on Synthetic Drugs, National Research Council
CHICAGO

of the Federal Trade Commission in
with the Committee on Synthetic Drugs
ational Research Council in providing for the manufacture in this country of the important synthetic drugs which before the war were imported from abroad, and especially from Germany, has now passed through its first stage of development. Although supplies in some articles will not be overplentiful for some weeks yet, and plans for the manufacture of some important drugs, such as phenylbarbital (luminal) are still in the stage of preparative study only, the situation has defined itself so far that its further successful development can best be attained by the frank and hearty cooperation of the medical profession with the Federal Trade Commission and the National Research Council. The purpose of this series of short articles is to insure such cooperation, first by giving specific information to physicians, second, by requesting in return specific methods of support by physicians, and third, by inviting constructive suggestions.

This first article is devoted to a report concerning three of the most necessary drugs involved, Arsphenamine (introduced as salvarsan), Procaine (introduced as novocaine), Barbital (introduced as veronal) and Barbital-sodium (introduced as veronal-sodium and as medinal). The report will not be limited to licensed articles, and is intended to give information of the whole situation etic drugs, as
it is known to the committee at

GENERAL USE OF THE NE L NAMES

The first and one of the n ant matte
to be brought to the attention physician
is an appeal to them to *prescrib* *ed remedi*
by the new official names given *may see*
a triflin t a few w nation
the rea adoption o s shou
suffice underlyin of t
request. the urg or s
thetic d ral Tr
the com Nation
faced the mak
for manuf rtak
these articles
without per
prohibitive—
cost, in some
obtained befor
accomplished b
patents and not
making possible
profits rather tha
the capital of whic
"war profits." Pa
licensees a market
in larger part inspire
establishment of a p

these important articles, the Commission wisely decided that American houses should be put on the same footing as competing foreign houses for the after-the-war competition, by imposing on all licensees the obligation to use *new official names* for the articles, names which after the war will be open to all competitors, domestic and foreign. Obviously if these names are once in common use the exclusive rights of the foreign houses and their agents of using after the war the old established trade marked names would not seriously handicap American firms, and all competitors would be on the same footing, with the advantage only to those who could produce most cheaply the better articles. The owners of the original patents after the war will continue to receive the royalties adjudged to them by the courts; and for any loss of advantage resting in a monopoly, enemy countries must hold themselves directly responsible in view of the way in which our nation was drawn into the war. *It is obvious* that the American physician in final instance is the arbiter who can put this wise plan into operation and *establish the new names firmly* by prescribing these remedies by their new official names, *supplemented, if desired,* by the name of the manufacturing firm to indicate any brand demanded. Thus, "Arsphenamine-Dermatological Laboratories" is as expressive as "Arsenobenzol-Schamberg," and "Arsphenamine-Farbwerke-Hoechst" far better for the interests of the country, of patients and physicians, than "Salvarsan-Farbwerke-Hoechst."

An appeal will be made to medical journals to use the new official names in all advertising and all articles and editorials. Thus, with the cooperation of all loyal Americans we may wish Godspeed to the new American industry to which the throes of warfare have given birth, that we may never again face the intolerable situation of seeing our patients suffer and die
rom the absence of absolutely necessary medicinals,
ver again hear of "Bulgarian operations" at our
itals for lack of proper anesthetics!

THE COST OF SYNTHETICS UNDER LICENSE

rning n to the matter of cost of the new rem-
we fin t it has been possible in only a single
ce, th arsphenamine, to make an exact
te of mate price for the drug; and in this
e a as been imposed on the licensees,
illing ted by them, that I understand is
wer price of the imported article was
e 50 per dose when sold to the pri-
d a price of a dollar or less per
ld in large ampules to hospitals is
on which the country is to be con-
e of the war prices that obtained
o the war and immediately there-
of procaine and barbital, direct
thus far seemed unwise because
gaging the actual cost to manfac-
er hand, a sufficient number of
sued with the view of insuring a
competition. In no instance has
been granted by the Federal
though applications for exclusive
it. It is safe to predict that no
be granted in the future. If
not bring about a tolerable
prices, the Commission has
se a limit of price when the
warrant such a course.

---

* The information convey
reports to the writer: it is p
is published now to avoid
before the medical profess
information to be used later

The number of licenses issued for the manufacture of a given article has been small but sufficient, and there is nothing in the way of a change of policy if a change should seem wise. A limited number of licenses for a given article is thought to insure its manufacture at a reasonable price to the public and at a reasonable profit to the manufacturer. Too many licenses for a single article would lead to overproduction; few good houses would have entered the field without some assurance that the Commission is anxious to protect in a reasonable degree both the public and the manufacturer. Moreover, this policy has secured the manufacture of almost all the most urgently needed drugs by various houses without allowing them to concentrate on the most profitable one or two.

THE CONTROL OF SYNTHETICS UNDER LICENSE

Before licenses were issued by the Federal Trade Commission, the latter insisted on submission of the products of the applicants to the Public Health Service, in the case of arsphenamine, or, in the case of other medicinals, to the Committee on Synthetic Drugs for examination by the Chemical Laboratory of the Council on Pharmacy and Chemistry of the American Medical Association and for such other tests as were deemed wise. The Council will buy samples in the open market and seek to protect the public against any falling off in the standards.

PRESENT STATUS OF SYNTHETICS UNDER LICENSE

Now as to specific information concerning four of the most important of the synthetic drugs, we have the following to report:

1. *Arsphenamine.*—This official name for the drug introduced as salvarsan is a contraction of its more scientific name, arsenophenolaminehydrochloride. *Manufacturing* licenses have been issued to: Farbwerke-Hoechst Company (H. A. Metz), 11 Hudson Street, New York, which controlled the sale of salvarsan imported from Germany; Dermatological Research Laboratories, Philadelphia Polyclinic (Dr. J. F. Schamberg), which even before our entrance into the war manufactured the well known Arsenobenzol brand of Arsphenamine; the Takamine Laboratories, New York, which have in their employ Dr. Hata, with Ehrlich, the co-discoverer of the remedy.

An importing license has been issued for the Canadian brand of Arsphenamine, Diarsenol, and a further license most likely will be issued for the importation of the French or Billon brand.

In this way provision has been made for five independent sources of supply of this important drug, the quality of which is being controlled by the Public Health Service. All but the Takamine Laboratories are now producing arsphenamine in thousands of doses per day, and the price for the supply of physicians, as stated above, has been fixed at $1.50 per ampule of 0.6 gm. It is true that the major part of the production of the two American manufacturing establishments which are in full operation is still going quite rightly for the supply of the Army and Navy; but as large a proportion as circumstances permit is already available for the public. There is no ground for exorbitant prices, and physicians are urgently invited to report with full details any cases of extortion as well as of inability to secure moderate supplies either directly to the Federal Trade Commission in Washington, or to the writer of this article.

2. The licensees for arsphenamine are preparing to manufacture the neo-arsphenamine as well. Licenses for its manufacture will shortly be issued, the Public Health Service being engaged in drawing up standards for its purity This product will be licensed primarily for the convenience of physicians and not as an absolute necessity, arsphenamine being more easily prepared pure on a large scale. It should be added that other promising methods of convenient administration of arsphenamine itself are under investigation which, if successful, will go far toward solving the chief objection to its use.

3. *Procaine* is the official name of the product introduced as novocaine It is the hydrochloride of diethylamino ethyl para-amino-benzoate.

The name is a contraction of pro-cocaine, the drug being a substitute for cocaine. Licenses for its manufacture have been issued to: Farbwerke-Hoechst Company, 111 Hudson Street, New York, the holder of the agency for the German product before the war; the Rector Chemical Company, 50 East Forty-first Street, New York, which has had the assistance of Professor Bailey of the University of Texas in elaborating the process of manufacture; the Abbott Laboratories, Ravenswood, Chicago, which have been assisted by Prof Roger Adams of the University of Illinois; the Calco Chemical Company, Bound Brook, N. J., which has benefited by the advice of Prof. T. B. Johnson of Yale University.

Before a license was granted to any one of these firms, its preparation was submitted to our subcommittee on synthetic drugs, and tested by the Council on Pharmacy and Chemistry, chemically at the laboratory of the American Medical Association, and pharmacologically by Prof. R. A. Hatcher of Cornell University Medical School, a member of the Council. Procaine is a difficult preparation, requiring many operations and materials for its manufacture, which it has not been easy to secure; but rapid progress has been made in overcoming all the obstacles, and there should be no further difficulty in securing sufficient supplies of the drug for the most necessary purposes and ultimately for all needs.

In this connection it should be said that Parke, Davis & Co. have invented a new cocaine substitute, *Apothesine,* the hydrochloride of diethylamino-propyl cinnamate. It has been tested by a number of eminent surgeons and found to be quite as effective and about as safe as procaine itself, to which it is rather closely related in structure. There is a field here for further discovery of products that would be as effective and even more easily prepared.

4. *Barbital* is the official name of the product introduced as veronal. The word is a contraction of its chemical name, diethyl-barbituric acid. A license has been issued to: the Abbott Laboratories, Ravenswood, Chicago. A license will be issued shortly, or has already been issued to the Antoine-Chiris Company, 18 Platt Street, New York.

The products of these firms have been tested in the laboratory of the American Medical Association at the request of the Committee and found satisfactory.

The Bayer Chemical Company, 117 Hudson Street, New York, and Merck & Co., 45 Park Place, New York, are reported to have supplies of barbital, presumably imported.

Barbital-Sodium is available from Merck & Co., New York. No doubt, licenses for its manufacture will be secured by the licensees of the mother substance, Barbital.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, FEBRUARY 23, 1918

FOOD INSPECTION AND FOOD CONTROL

If it is true that public health is purchasable, it is also true that limited expenditures will not procure unlimited talent or unlimited results. The upshot of this indisputable statement is that community health work ought to assume a pragmatic attitude to the extent of undertaking foremost those procedures which pay well from the standpoint of good returns in lives saved and disease prevented. The evolution of modern public health activities has been gradual; it is still far from a complete or ideal stage. Progress in science has pointed year after year to the desirability of new measures in preventive medicine; but it has also often directed attention to the inefficacy of earlier procedures and given justification for their modification or abandonment. Nevertheless, the prestige of an established custom, whether it is in trade, in diet, or in practical hygiene, is not infrequently so firm that something more than scientific argument is needed to uproot or replace it.

The history of household disinfection and room fumigation would furnish illustrations of what has just been contended. The practice of the disinfection of habitations has undergone great revision, not without a feeling of uncertainty on the part of many as to loss of the supposed security against recurrence of certain types of diseases for which fumigation was once extensively carried out, after the removal of the patient. But, as a hygienist has cleverly expressed the situation, the old, ill founded idea that health work is to be centered on the environment has been displaced by the modern one, well supported by the data of science, that it is concerned directly with men and women. This does not mean that household disinfection or school disinfection is to be entirely discarded, but rather that the value of specific procedures of the past are to be evaluated on the basis of epidemiologic evidence rather than traditional assumption, as heretofore.

Two recent writers competent to discuss the values of modern health work have raised the question, directly or indirectly, as to the efficacy of much of the current work or propaganda in the domain of food hygiene. Dr. Chapin,[1] the superintendent of health at Providence, R. I., in attempting to combat the popular notion that the principal functions of a city health department are sanitation and food control, has remarked:

> Another time-honored and popular means of promoting the public health is control of the food supply. This control naturally is divided into the prevention of adulteration and the promotion of cleanliness. Though there is much lurid literature on the dangers of impure food, as a general thing adulterants are as likely to be healthful as unhealthful. Adulteration, with rare exception, is an economic and not a health problem. There is almost as much nonsense written about ptomain poisoning as there is about adulteration.[2] "Ptomain poisoning" is the popular name for disorders arising from bacterial changes in food. Of such we really know little except that they are not nearly so common as is believed, and that the routine inspection and condemnation of cabbages and corned beef, as practiced by our city health officials, probably has no effect in restricting the somewhat rare occurrence of such poisonings.

It is, of course, readily admitted that infections may be food borne. The story of the part played by milk in the distribution of epidemic sore throat, typhoid fever, scarlet fever and tuberculosis need not be rehearsed here as evidence. But Jordan,[3] of the University of Chicago, in emphasizing the bacteriologic aspects of the subject points out that, after all, the current methods for preventing food infection (which certainly is not as innocuous as the most usual adulterations in the chemical sense) are not those of the simple inspection of food products. The chief infections that are known to be due to food infected at its source, says Jordan, are those—mainly meat borne—caused by the group of paratyphoid-enteritidis bacteria and those resulting from the use of infected milk. For this reason it is questioned "whether the amount of disease prevented by the ordinary methods of food inspection is at all commensurate with the outlay."

It would be reckless, indeed, to abandon the careful supervision of our milk supplies in any detail that makes for health, whether it be in the direction of examination of the persons handling this food or of effective pasteurization, or of any other hygienic device that has justified itself. Even harmless water may render milk of poor nutritive value to children, and surely skimmed milk has lost a component of no little significance for the young. It may well be debated, on the other hand, whether much or even most of the currently practiced food inspection "pays" from the standpoint of lives saved. From this standpoint clean streets may not "pay," and whitewashed barns may not prevent the loss of health. Nevertheless, modern civilization demands these and even more. Whether the campaigns for cleanliness in home, factory and outdoor premises ought to be directed from the office of the public health authorities or financed from their all too limited funds is a question for frank debate. But we cannot afford to give up the esthetic acquisitions of modern life. Nor are we to forget that, harmless though most fraudulent adulterations are, they are not always safe. The Bureau of Chemistry only recently saved us from the hidden dangers of poisonous beans imported by unscrupulous persons and ready to be unloaded on an unsuspecting public. Modern food control has insisted on honesty and purity in matters that concern our daily lives. We must retain this valuable force intact in our public welfare organization—somewhere.

---

[1] Chapin, C. V.: The Relative Values of Public Health Procedures, The Journal A. M. A., July 14 1917, p. 90.

[2] Ptomain Poisoning versus Food-Borne Infection, editorial, The Journal A. M. A., Feb. 16, 1918, p. 462.

[3] Jordan, E. O.: Food-Borne Infections, Science, Jan. 25, 1918, p. 80.

THE OWEN-DYER BILL FOR INCREASED RANK

Last week we printed the text of a bill just introduced simultaneously in the Senate by Senator Owen and in the House by Representative Dyer. The numbers are, respectively, S. 3748 and H. R. 9563. These bills consist of two paragraphs. The first reads:

> "That hereafter the commissioned officers of the Medical Corps, and of the Medical Reserve Corps, of the United States Army on active duty shall be distributed in the several grades in the same ratios heretofore established by law in the Medical Corps of the United States Navy."

The bill is essentially the same as that introduced by Senator Owen last July. The latter—the Owen bill of July—provided definite percentages which should be applied to the distribution of the various grades in the Army. These were the same as apply to the Navy. The Owen-Dyer bill provides that the officers of the Medical Corps and of the Medical Reserve Corps of the Army on active duty shall be distributed in grades in the same percentages as established for the Navy: the end-results are the same The wording of the present bill is undoubtedly more diplomatic, since it presents to senators and congressmen a simple request to grant to one branch of the Service the same ranks as prevail in another branch of the Service which performs essentially the same duties and fulfils the same requirements.

The following table shows the percentage distribution in the various grades of the regular Army and Navy medical corps as at present constituted:

	Army Present Law Per Cent.		Navy Present Law Per Cent.
Lieutenants		Lieut. Junior Grade	
Captains	67.2	Lieut.	64
Majors	23.7	Lieut.-Commander	23.5
Lieut.-Colonels	5.42	Medical Inspector (Comm.)	8
Colonels	3.16	Medical Director (Capt.)	4
Brigadier-Generals	None[1]	Medical Director (Rear Admiral)	0.5

It must be borne in mind in considering the above table in its relation to the proposed legislation that the distribution given in the table applies, so far as the Army is concerned, only to the regular Medical Corps; it does not apply to the Medical Reserve Corps. The Medical Reserve Corps, as constituted by the National Defense Act, is limited in rank to the three grades of lieutenant, captain and major, with no percentage limitation.

The Owen-Dyer bill provides, first, higher grades and an increased percentage of officers in the higher grades. Second, and this is important, the bill provides that an officer in the Medical Reserve Corps on active duty may achieve the same rank as an officer in the regular Medical Corps. If the bill becomes a law, including both the regular Corps and Medical Reserve Corps, and basing the percentage estimate on 20,000 officers in active service (required for an army of 2,700,000 men), there may be 100 brigadier-generals, 800 colonels, 1,600 lieutenant-colonels, 4,700 majors, and 12,800 captains and lieutenants.

Both the Owen bill of last July and the present Owen-Dyer bill provide for the appointment of "consultants." The paragraph in the former reads:

> "The President shall have authority to appoint officers of either corps as 'consultants,' with the duty of acting in an advisory capacity, making inspections and reports on medical, surgical, or sanitary questions, and such other duties as may be required by the chief of the Medical Department."

The following is the paragraph in the new Owen-Dyer bill:

> "The Surgeon-General shall have authority to designate as 'consultants' officers of either corps and retire them as the interests of the service may require."

It will be noted that the first bill assigned to the President the authority to appoint these consultants, and defined their duties. The Owen-Dyer bill gives the Surgeon-General the right of appointment, but it does not specify what the duties of these consultants shall be.

The Owen-Dyer bill will, we are sure, have the approval of every physician, whether he be in the Medical Corps, in the Medical Reserve Corps, or a private in the ranks of the general profession. It is not only a bill that we can heartily endorse, but also one that we should feel it a duty to support. But those who write to their congressmen or senators should inform them that the increased rank, and the authority which goes with it, is desired not for the increased pay which will come with the advanced rank, nor as a salve to the pride of these officers, but primarily in the interest of sanitary and health conditions of our army and as common justice to men who are making tremendous sacrifices. Nevertheless, whatever may be the verdict of Congress in this matter, medical men will play the game and do their duty; but Congress should be given to understand that these men at the present time are working under a heavy handicap which a wise Congress will remove without delay.

---

[1] Surgeon-General Gorgas is a Major-General by special act of Congress. Ordinarily the Surgeon-General is a Brigadier-General.

CARDIOVASCULAR EXAMINATIONS

Among the many problems presented to the physician examining prospective candidates for the Army, none is more perplexing than that of the heart. What constitutes proof of disqualifying cardiac conditions? Of course in most instances the answer is clear; even on closest scrutiny, the heart is free from any sign or symptom of disease, or, on the other hand, the history and examination reveal unmistakable evidence of organic mischief in valve or muscle. The more questionable cases are those in which the rate, rhythm or size are not according to the generally accepted standards, or those in which an endocardial murmur arrests attention. What, under these circumstances, constitutes fitness, and what unfitness? And particularly how is one to decide when, as in the case of the man trying to break into the Army, the symptoms of heart inefficiency are minimized or glossed over, or, in the case of the young man anxious to escape the draft, symptoms are magnified and perhaps the heart's action made unnatural so far as possible by the use of irritants, such as alcohol, tobacco, coffee or drugs?

Hard and fast rules to govern in these cases cannot be laid down. Each case must be studied on its own merits, and much will depend on the skill of the physician in physical examination, on his soundness of judgment, and on his ability to read disease in general and heart disease in particular. A good all-round physician whose experience has taught him to understand human nature will sometimes make a better diagnosis of the fitness of a candidate with doubtful heart than the more learned and scientific man with acute powers of auscultation and with all the refinements of diagnosis that go with modern instruments of precision. Common sense, experience and a sizing up of conditions in their entirety may here reach the correct conclusion that would be missed were one to rely on the presence or absence of murmur, the pulse pressure, the rhythm, the rate before and after exertion, or the instrumental record.

One difficulty in these examinations has been the question of endocardial murmur. In the minds of many examiners it bulks large; no matter how faint or where located, its discovery is sufficient to cause rejection. The fact is ignored that some murmurs are innocent and do not mean any incapacitating lesion of valves or muscles. Teachers and writers have written much on the topic, but the teaching is too often unknown or unheeded and needs to be frequently repeated. It is valuable to have Dr. Babcock emphasize the importance of the association of the murmur with change in the size of the heart, altered second tones, dyspnea, cyanosis, etc., before concluding that there is serious disease, which he did in a recent article in THE JOURNAL.[1] Many candidates with murmur but without these secondary signs are eminently fit for Army service.

While what we have said is true, we must emphasize a possible danger in this direction: the danger of minimizing some of the signs of slight cardiac derangement and of ordering into Army service men who, under the severe strain of military life, will have their mild heart difficulties aggravated so that ultimately their hearts may break down. Persistent emphasis by teachers on the innocuousness of an accidental murmur, warning from men like Babcock as to the injustice of rejecting a man on his murmur alone, emphasis by Christian,[2] Lewis and others on the comparative unimportance of the murmur, caustic comment by an honored authority like Mackenzie may ultimately undermine the orthodox faith of the ordinary doctor, and he may renounce entirely his belief in the meaning of endocardial murmurs. The same is true of extrasystole. And this danger is increased because it is to be remembered that the instructions given the Army examining physician as well as the physician on the selective service exemption boards especially call attention to the fact that the murmur alone is not proof of incapacitating disease of the heart. These instructions, by the way, seem to be unknown to some who are free in their criticism of the Army or draft board examination, and who seem to take it for granted that the working orders issued by the government imply rejection for murmur alone.

And now, after all has been said about the relative meaninglessness of certain murmurs and extrasystoles and tachycardias, must we not admit that, given one of these departures from the normal, the burden of proof is with the one who claims their insignificance? Grant that the outdoor life, the regular military drill may benefit a flabby myocardium; grant that the mitral leak may be slight, the secondary changes not manifest even to careful examination; grant that the heart is competent to meet all ordinary demands of civilian life; the question is, Will it be able to stand up under the storm and stress of the Army? Can it meet the sudden emergencies, the exposures, the physical and nervous shock that will come? May it not break down in a few years? Must we not feel that an injustice has been done the man in forcing on him a lifelong damage that will shorten his years, an injustice to the Army whose soldier fails perhaps at some critical moment, and an injustice to the government that is forced to pay the pension or the insurance because of the faulty original examination? If albuminuria in one who has no other sign of disease rules one out of service, or slight latent tuberculosis of the lung, or a minute hernial protrusion or even a patulous inguinal ring, all for the reason that there is likelihood that Army service may aggravate existing conditions, even though these in no way interfere with one's active participation in civilian life, should not even slight cardiac faults be noted and the man be accepted as a soldier only after scrutinizing proof that these signs are clearly not indicative of actual lesion?

---

[1] Babcock, R. H.: Prognosis in Cardiac Affections, THE JOURNAL A. M. A., Feb. 9, 1918, p. 357.

[2] Christian, H. A.: Boston Med. and Surg. Jour., 1917, **177**, 750.

As we said before, no hard and fast rule applies; each case must be judged on its own merits; and here is where the patient application of trained skill and good judgment will avail much.

Current Comment

THE WORK OF THE MEDICAL ADVISORY BOARDS

As was suggested in The Journal a few weeks ago, the effect of the special regulations for physical examinations of registrants issued to the local boards has been to throw the large portion of examinations on the medical advisory boards. And from what we can learn, the medical advisory boards, especially in large cities, while they are straining under this heavy burden, working some of them often far into the night, making considerable financial outlay from their private purses to fill in shortages in equipment and in clerical service, are nevertheless rendering their duty, as was predicted, wholeheartedly and efficiently. It is, of course, only after the men are called to camp that the great saving to the nation through this elimination of the unfit at the source will be realized. The defect in the entire system is that these men, as well as medical members of local and district boards, who are giving such excellent service and such large measure of their time and efforts do not receive any consideration from the government, either financial, material or otherwise. Would it not be a proper measure to recognize these men by conferring some appropriate insignia or certificate?

BENCE-JONES PROTEINURIA

Although the syndrome of heart block has been known for nearly a hundred years, the frequency of its occurrence was not appreciated until within the past two decades, when the more erudite investigation of its details by modern laboratory methods focused attention on the scientific aspects. Accuracy in diagnosis brought with it a more widespread recognition or identification of cases of Adams-Stokes disease. Perhaps a somewhat similar history is about to be written for another long known abnormality, familiarly termed Bence-Jones proteinuria. At present this may still be classified among the rarities of clinical experience. It is usually associated with diseases of the bone marrow, notably multiple myeloma.[1] Miller and Baetjer[2] of Baltimore have recently described the existence of Bence-Jones protein, or some substance similar to it in behavior, as the only protein excreted in the urine in cases of chronic nephritis with edema and high blood pressure. The identification of several cases by the same investigators within a few months suggests that the association of Bence-Jones proteinuria, hypertension and nephritis may not even be uncommon, and that, as they say, attention called to this matter will result in the finding of more instances. When the further evidence thus predicted as likely to be forthcoming will be available, it may become possible to determine whether Bence-Jones proteinuria represents "either the normal, abnormal or aberrant stage of bone synthesis, the completion of which is hindered by some unknown deficiency, in association with some unusual set of physicochemical adjustments which permit the compound to pass through an organ capable of holding back smaller protein molecules." In any event, it behooves us to learn the tests for the Bence-Jones protein and to be on the lookout for its appearance in the urine, even when disease of the bones is not suspected.

THE POSSIBLE SIGNIFICANCE OF HIGH SUGAR CONTENT IN DIABETES

Those who have occasion to estimate the sugar content of the blood of diabetics and to evaluate the data for therapeutic guidance must now and then be puzzled by the wide variations that occur at different times in the same person. A large experience acquired at the Medical Clinic of the Johns Hopkins Hospital has furnished the basis for certain new points of view, which Mosenthal, Clausen and Hiller[1] have formulated in a recent publication. They point out that, according to the observations of Hamman and Hirschman,[2] superimposed doses of glucose are not necessarily followed by a steplike rise in the blood sugar. It is only the first dose that causes the percentage to rise; the subsequent doses apparently have no effect. Mosenthal and his colleagues have noted that the blood sugar values remain at the fasting level or below it throughout the day in those cases in which the initial hyperglycemia is marked (for example, from 0.17 to 0.45 per cent.); whereas it rises in those in which it is low (from 0.12 to 0.16 per cent.). It seems, to quote the Baltimore clinicians, that each diabetic has a blood sugar level at which his carbohydrate metabolism proceeds in a fairly normal manner, with no rise in the blood sugar after meals of a moderate starch content. In very mild cases, they state, this acquired blood sugar level may be very low and no increase result after the eating of a starch-free meal; whereas, in individuals with a very marked derangement in their carbohydrate metabolism, such a favorable blood sugar level will be proportionately increased. When this optimal glucose percentage in the blood is reduced by dietary restrictions, the organism tends to respond on the least provocation by a hyperglycemia. It is under such circumstances that there occurs an increase in the glucose of the blood after ingestion of protein and fat. The contention that the organism tends to utilize glucose more effectively when the blood sugar is at a high level than at a low

---

[1] Rosenbloom, J.: A Review of the History of Bence-Jones Protein and Multiple Myeloma, with Complete Bibliography, Med. and Surg., 1917, 1, 257.

[2] Miller, S. R., and Baetjer, W. A.: Bence-Jones Proteinuria: Some Observations on Its Occurrence, with Particular Reference to Nephritis and Hypertension, The Journal A. M. A., Jan. 19, 1918, p. 137.

---

[1] Mosenthal, H. O.; Clausen, S. W., and Hiller, Alma: The Effect of Diet on Blood Sugar in Diabetes Mellitus, Arch. Int. Med., January, 1918, p. 93.

[2] Hamman, Louis, and Hirschman, I. I.: Studies on Blood Sugar, Arch. Int. Med., November, 1917, p. 761.

one is supported, so the argument runs, by the existence of a mild hyperglycemia during muscular exercise. Can it be that the rise in blood sugar content in diabetics represents an attempt of the organism to adjust carbohydrate metabolism for the more advantageous utilization of sugar, as seems to happen after exercise? If so, there may be some wisdom in the suggestion of Mosenthal and his associates that we must not counteract the effective use of glucose when the blood sugar is at a higher level. Translated into clinical dietotherapy, it may be desirable not to attempt to reduce the blood sugar to a normal value in every case of diabetes. One sometimes hears a somewhat analogous argument in discussions of fever when the relation of the higher temperature to the febrile process is under debate.

HIGHER RANKS FOR RESERVE OFFICERS IN THE NATIONAL ARMY

In discussing the Owen-Dyer bill, elsewhere in this issue, we state that the National Defense Act of 1916, creating the Officers Reserve Corps, limits the members of that corps to the grades of lieutenant, captain and major. This, of course, applies to medical officers as well as to others. The Selective Service Law provides officers for the National Army created by that law, by authorizing the President to appoint members of the Officers Reserve Corps, and members of other organizations specified in the law, to positions with the National Army. The officers in rank not above colonel may be appointed by the President alone, and in ranks above colonel by the President by and with the consent of the Senate. This will explain the authority under which certain members of the regular Medical Corps have already been appointed to the rank of brigadier-general, and certain officers of the Medical Reserve Corps have been made lieutenant-colonels. Medical Reserve officers attached to the National Army may, therefore, be given ranks higher than major. The appointments so awarded, however, are temporary—for the period of the emergency—and as we read the law terminate at the end of the war when the National Army is mustered out of service.

THE PREVENTION OF DEATH

We hasten at the outset to warn any oversanguine reader, if such there be, against unwarranted optimism suggested by this theme. In truth,

> There is no armor against fate;
> Death lays his icy hand on kings;
> Scepter and crown
> Must tumble down,
> And in the dust be equal made
> With the poor crooked scythe and spade.

Nevertheless, a discussion of the cause of death[1] and the formulation that its immediate manifestation is in many instances associated with and presumably attributable to acidosis, whereby the respiratory center is irreparably paralyzed, suggests the possibility of preventive measures. The antidote to an acid is a base. Whitney,[2] to whom we owe the etiologic suggestions just made, has warned, however, against indiscriminate use of alkalis in what one might designate as terminal acidosis. The neutralization of the acid ions, as he quite properly points out, is not the only thing to be considered; the salts thus formed must be eliminated; otherwise they may accumulate to an abnormal and possibly highly dangerous concentration in blood and tissues. If elimination is so poor, Whitney adds, as to allow accumulation of acid, there is every reason to suppose that salts may also be retained. The more rational procedures would be to promote elimination by diuresis as far as possible, and by a gentle breeze of fresh air across the face to prevent even the slightest accumulation of carbon dioxid. But acidosis is not the only foe of man. There are toxins for which no antidote or preventive measures can even be suggested at the present moment.

> Devouring famine, plague, and war,
> Each able to undo mankind,
> Death's servile emissaries are;
> Nor to these alone confined.
> He hath at will
> More quaint and subtle ways to kill.

CHOLESTEROL AND FAT ABSORPTION

Evidence has been accumulating of late, assigning to the lipoids, lecithin and cholesterol, a rôle in the transport and metabolism of fats.[3] Even in severe lipemia there seems to be a constant relation between the cholesterol, fatty acids and lecithin of the blood, thus attesting the apparently important function of the lipoids maintained under conditions of fat transformations more strenuous than usual. Cholesterol exists in the blood not only in a free state but also in the form of esters. Several investigators have reported a fairly definite relation or balance between the free and the combined cholesterol in the blood. By following the proportions of these lipoid substances in both plasma and corpuscles during the course of the active absorption of fats from the alimentary tract, Knudson[4] of the Albany Medical College has further corroborated much of the evidence already available. He found, as did Bloor,[5] that the total cholesterol of the blood changes very little in amount during uncomplicated fat absorption. But the amount of cholesterol existing as an ester, that is, a compound with one of the higher fatty acid compounds of fat, as exemplified in palmitic, stearic or oleic acid, unquestionably increases under the circumstances. This change seems to go on in the corpuscles. The latter are practically devoid of cholesterol esters under fasting conditions; but, after absorption of fat, increases of several hundred per cent. in these esters are regularly found. This is in harmony with the assumption that cholesterol takes an active part in the process. As a somewhat similar increase of fatty acids and of lecithin, noted in the whole blood but particularly in the corpuscles, has also been reported, it would seem that these blood cells must play an active part in the assimilation of fat. It has been suggested that they take up as much fat as possible and transform it into cholesterol esters and the complex fat lecithin, which are regarded as intermediate stages of fat metabolism

---

[1] The Cause of Death, editorial, The Journal A. M. A., Feb. 16, 1918, p. 461.

[2] Whitney, J. L.: Studies on Acidosis: The Immediate Cause of Death, and Remarks on the Acidosis of Nephritis, Arch. Int. Med., December, 1917, p. 931.

[3] The Lecithins of Milk, editorial, The Journal A. M. A., Nov. 13, 1915, p. 1734; Pure Lecithin, April 1, 1916, p. 1029; The Assimilation of Fats, July 8, 1916, p. 124; The Lipoids ("Fats") of Human Blood, Sept. 23, 1916, p. 956; Blood Lipoids and Diabetes, Nov. 25, 1916, p. 1602; Biochemical Relationships in Metabolism, Particularly in Respect to Cholesterol, Aug. 11, 1917, p. 474; Cholesterol Estimations in Blood, Dec. 8, 1917, p. 1917.

[4] Knudson, A.: Relationship Between Cholesterol and Cholesterol Esters in the Blood During Fat Absorption, Jour. Biol. Chem., 1917, **32**, 337.

[5] Bloor, W. R.: Jour. Biol. Chem., 1916, **24**, 447.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending February 15, the personnel of the Medical Department of the Army included:

Medical Corps: 776 including 1 major-general, 62 colonels, 107 lieutenant-colonels, 213 majors, 2 captains and 391 lieutenants.

Medical Reserve Corps: 16,822 including 962 majors, 3,701 captains and 12,156 lieutenants. *On active duty:* 13,507 including 831 majors, 3,128 captains and 9,548 lieutenants.

Medical Corps, National Guard: 1,201 including 7 lieutenant-colonels, 255 majors, 149 captains and 790 lieutenants.

Medical Corps, National Army: 16 including 4 brigadier-generals, 6 colonels, 4 lieutenant-colonels and 2 majors.

The dental corps, 211; dental reserve corps, 4,999, of whom 1,296 are on active duty; dental corps National Guard, 264; veterinary corps, 25; veterinary reserve corps, 1,364, of whom 696 are on active duty; veterinary corps National Guard, 57; veterinary corps National Army, 261; sanitary corps, 811, and ambulance service, 136, constitute the remainder of the commissioned personnel.

Surgeon-General Braisted Reappointed

Secretary Daniels, announcing that the President has sent to the Senate the reappointment of Rear Admiral William C. Braisted as Surgeon-General of the Navy, states that Surgeon-General Braisted is so efficient and capable, and the Bureau of Medicine and Surgery under his direction has made such an excellent record under the conditions imposed by the war, that his reappointment will meet with general approval. Secretary Daniels also points out the large growth in the personnel of the Navy Medical Department, the attendant increase in equipment, and the fact that the health of the Navy is reported as unusually satisfactory and has shown a marked improvement in the past month. "Surgeon-General Braisted," he says, "keeps in daily touch with sanitary and health conditions ashore and afloat, and the gratifying experience of the Navy as to the health of its personnel is largely due to his foresight and leadership, combined with the complete cooperation of all in the medical corps."

Medical Officers Wounded

Capt. Robert Drane, M. R. C., Madison, Wis., is reported to have been slightly wounded while serving with the British Army in France, February 5.

Lieut. Willie H. Howell of Belleville, W. Va., attached to a field ambulance, was slightly wounded in action in France, January 30.

Lieut. Herbert A. Brown, M. R. C., Cincinnati, attached to the British Expeditionary Forces, is reported to have been slightly wounded in action, December 31.

Lieut. Wallace A. Belsey, M. R. C., Belvidere, Ill., on duty with the British forces in France is recuperating in a hospital in London from shell wounds received at Cambria, while going over the top to direct stretcher bearers.

Expansion of Training Camps for Medical Department

According to the *Army and Navy Register*, February 16, Surgeon-General Gorgas has called the attention of the War Department to the fact that the Army Medical Department now lacks quarters at medical training camps for 9,000 men. It has been ascertained that 10,000 men will be assigned to the Medical Department in the second draft, and it is not possible to accommodate more than 2,000 of these at the training camps. Following is the memorandum of Surgeon-General Gorgas:

The [illegible] that untrained men have had to be sent direct [illegible] other organizations not adequately prepared to train [illegible] shortages of this department have been added to the [illegible] and these, with its prospective needs created by [illegible] plan, produce a problem in medical training, organization [illegible] not solvable by present facilities. Every month [illegible] its need has seen its burden grow proportionately [illegible]

This department [illegible] in round numbers, 135,000 men. It takes two months at the [illegible] to train a man. All this number should be trained [illegible] months to be of any material use in the 1918 drive. [illegible] numbers directly absorbable into hospitals and divisions [illegible] mathematics to show that nothing less than all the [illegible] at Chickamauga Park, with those now available at the [illegible] training camp, Fort Riley, can even approximate the [illegible] expected needs.

New [illegible] established at other points for the reason that no [illegible] equipment or material are available. But great expansion of the present [illegible] and administrative and teaching staff at the medical officers' training camp, Fort Oglethorpe, is possible and furnishes the only solution.

In a letter from this office of January 16 request is made that the War Department formulate a definite policy under which the medical department shall systematically receive personnel, with approximate dates and numbers of installments.

The present letter further requests the formulation of a policy by which the department may be enabled to shelter, organize, and train such personnel as higher authority may decide as necessary to it.

Surgeon-General Inspects Camp Greene, N. C.

Under date of February 12 Surgeon-General Gorgas sent the following memorandum to the secretary of war relative to conditions at Camp Greene, N. C.:

The wet weather and character of the soil at Camp Greene, Charlotte, N. C., together with the temporary nature of the camp, have brought about conditions which I wish to call to your attention and which may be summarized as follows from the last two reports of sanitary inspections of the camp:

GARBAGE REMOVAL STOPPED BY MUD

Knee-deep mud has interfered with garbage removal by contractors, and quantities have been dumped or buried because of shortage of fuel for burning it.

Limited facilities for heating water for bathing over a period of several months has resulted in the men becoming dirty.

Water from the kitchens, baths and overflowed latrines is removed by ditches, surface drainage, or stands in pools. The character of the soil will make it slow to dry out and, with the advent of warm weather, flies and other insanitary conditions may be anticipated.

The dirt floors of the kitchens will breed flies; the field ranges in use are uneconomical and smoke indoors with any wood fuel.

Shortage of supplies has held back the work on the detention camp for contacts until its overcrowded condition has led to the establishment of quarantine areas in the regiments, but reports on this indicate that completion of the detention camp is preferable to continuation of the latter plan, especially since sufficient tent space and separate latrines and mess halls have not been available to make the regimental quarantine absolute in the areas set aside.

Work has been held up on the additional quarters for nurses by failure of material to arrive, and the same has affected progress on reconstruction of the operating and laboratory buildings of the base hospital, which were recently destroyed by fire.

Overcrowding, to the extent of eight men to a tent, and occasionally more, is reported.

Sick rates at Camp Greene are not notably high and measles and pneumonia cases appeared on the decline at the last report, but the insanitary conditions mentioned should be corrected without delay to prevent increased sickness and mortality, which may result from their continuance.

It has been recommended that additional tentage be supplied the commanding general at Camp Greene to enable him to quarter all men on the basis of five to a tent instead of eight. It is understood that this recommendation has been approved.

The immediate necessity at Camp Greene is the installation of a sewer system for the entire camp, which is again urgently recommended.

NEWS OF THE CANTONMENTS

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Feb. 11, 1918.

INCREASE IN PATIENTS' RATIONS

An increase will be made in the rations for nurses and patients at the base hospital at Camp Zachary Taylor. The ration allowance of 40 cents a day for each nurse and patient will be increased to 60 cents a day. This will make possible the serving of any special diet prescribed by the medical officers for the patients. This increase in ration allowance has been made necessary by the increase in the cost of necessities.

COURTS MARTIAL

Brigadier-General Wilder has issued a memorandum that there have been too many courts martial held at the camp. He states that in many of these cases the offenses could have been settled by the company commander by company punishment. Instead, the officer has preferred charges against the soldier, with the result that he has gone before a court martial. At a court martial all witnesses must be heard, even though the soldier pleads guilty.

According to the review of a court martial verdict in the case of an officer tried for drunkenness by the commanding general, drunkenness in the Army, especially in the case of an officer, is so utterly reprehensible and disgraceful that its toleration by military courts or other military authorities can serve only to bring reproach on the service and, if unchecked, disaster to our arms.

TREATMENT OF SOLDIERS' FAMILIES

Special arrangements to provide medical services for the 400 families of soldiers in Louisville have been made by the U. S. Government.

An office has been opened in the custom house. First Lieut. Charles B. Matthews, M. R. C., formerly of Lexington, Ind., will be in charge, assisted by Lieut. W. K. Main, both being from the One Hundred and Fifty-Ninth Depot Brigade. A full equipment of medicines and instruments will shortly be installed, and all medicines and treatments will be free to the wives and children of soldiers. Calls will be made at the homes of patients by the surgeons in charge. Authorization for the new office was received from Washington, January 26, Col. John H. Allen, division surgeon, being responsible for the office.

ARMY NURSES

Five Army reserve corps nurses who have been on duty at Camp Zachary Taylor have been ordered to a port of embarkation for duty in France. Miss Mabel Peters, a graduate of the Louisville City Hospital, is the nurse in charge of the party. They will report to the commanding officer of Hospital Unit D, Major Irvin Lindenberger. Physicians and enlisted men of the unit have been stationed at Fort McPherson, Ga., near Atlanta, and will join the nurses at their point of embarkation in the East.

FOOD WASTE

A visit to the dining room of the base hospital, where the convalescent patients are fed, is a revelation. Before they begin to eat, Captain Dennen in an impressive short address, tells them the importance of not taking more food on their plates than they can eat. The Army wants the men to have all they want, but they are expected to eat all they take on their plates. Each man stands at attention after the meal is finished until the plates have been inspected. One hundred and seventy-five men were fed, and there was not a pint of refuse left on the plates—no scraps of bread, and only the inedible parts of the meat served. Unconsumed food remained in the dishes, and was taken back to the kitchen to be served again.

LETTER WRITING

Soldiers are great letter writers, the report from the Y. M. C. A. showing that from the various buildings 147,872 letters were mailed in January, making an average of seven letters to each man.

Money orders totaled $27,567.67, which were sold to soldiers.

PERSONAL

Lieut.-Col. John H. Allen was confined to his home in Walden Place for several days with an attack of tonsillitis.

——The superintendent of the city hospital, Dr. Tuley, after a visit to the base hospital convalescent dining room at Camp Zachary Taylor, made a request of the commanding general of the Eighty-Fourth Division for Captain Dennen, M. R. C., to address the patients, the maids, the help, the nurses and the staff on the importance of food conservation. This he did on Tuesday of this week, with a decided reduction in the amount of garbage sent out from the hospital.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 8, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

All Troops	1,662.2
National Guard Camps	1,488.7
National Army Camps	2,003.7
Regular Army	1,295.3

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	51.4
National Guard Camps	48.5
National Army Camps	59.5
Regular Army	40.2

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: National Guard: Camps Bowie, Wheeler, Doniphan, Sevier, Kearny and Beauregard. NATIONAL ARMY: Camps Travis, Pike, Funston (89th), Lee, Funston (92nd), Dodge, Jackson, Zachary Taylor and Sherman. REGULAR ARMY: Central and Southern Departments.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Beauregard, Wheeler, Shelby, Sevier and Kearny. NATIONAL ARMY: Camps Travis, Pike, Funston (92nd), Funston (89th), Zachary Taylor, Jackson, Dodge and Lee. REGULAR ARMY: Southeastern, Central and Southern Departments.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

National Guard Camps	65.6
National Army Camps	84.4
Regular Army	60.8

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Bowie, Logan, Wheeler, Cody and Beauregard. NATIONAL ARMY: Camps Pike, Dix, Jackson, Zachary Taylor, Lewis and Lee. REGULAR ARMY: Northeastern, Central and Southern Departments.

6. Number of new cases of Pneumonia reported	792
Highest number in any one camp (Bowie)	123
Number of new cases of Meningitis reported	117
Highest number in any one camp (Jackson-6; Beauregard-6)	6

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 8, 1918

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective per 1000
Wadsworth	5	...	...	20	..	..	...	..	..	0	28.9
Hancock	11	...	...	19	..	..	11	3	3	8	28.4
McClellan	10	...	...	25	..	..	22	..	3	1	39.0
Sevier	17	...	...	28	..	..	34	2	..	4	58.5
Wheeler	29	...	1	50	..	..	...	1	..	8	70.1
Logan	17	...	...	83	..	..	57	..	1	4	34.7
Cody	75	...	...	40	..	..	11	2	..	10	45.0
Doniphan	22	...	...	14	..	..	4	2	..	11	48.2
Bowie	123	...	...	75	..	..	2	3	..	7	84.0
Sheridan	16	...	...	7	..	..	14	..	1	7	27.4
Shelby	12	...	1	31	..	..	...	4	1	2	60.5
Beauregard	13	...	7	29	..	..	...	6	..	8	70.7
Kearny	13	...	...	2	..	..	3	1	14	3	54.2
Devens	7	...	...	15	..	..	28	1	..	2	37.2
Upton	15	...	...	27	..	..	...	1	5	2	32.7
Dix	5	...	...	49	..	..	57	1	7	2	49.6
Meade	11	...	...	18	..	..	26	4	12	10	31.3
Lee	15	...	1	48	..	..	47	3	..	0	70.0
Jackson	13	...	...	41	..	..	10	6	..	3	80.7
Gordon	9	...	...	31	..	..	38	1	..	6	36.7
Sherman	2	...	...	41	..	..	44	3	18	2	47.2
Taylor	27	...	...	48	..	..	12	..	2	4	83.4
Custer	4	...	...	20	..	..	22	..	5	7	46.9
Grant	3	...	...	27	..	..	48	1	10	3	39.1
Pike	19	...	3	219	..	..	17	1	19	20	96.1
Dodge	13	...	...	13	..	..	27	2	10	5	78.7
Funston, 89th	11	...	...	19	..	..	4	3	1	6	86.3
Travis	54	...	...	18	..	..	7	4	..	12	100.5
Lewis	8	...	...	61	..	..	30	2	63	0	52.2
Funston, 92d	2	...	...	...	..	..	1	..	..	0	90.3
Regulars	199	5	7	402	..	..	566	30	125	67	40.2
National Guard in Departments	...	...	...	11	..	..	30	..	2	2	28.7
National Army in Departments	12	...	...	40	..	..	107	..	30	6	112.0

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916*	Regulars in U. S., Week Ending Feb. 8, 1918	National Guard, All Camps, Week Ending Feb. 8, 1918	National Army, All Camps, Week Ending Feb. 8, 1918	American Expeditionary Forces, Week Ending Feb. 8, 1918
Pneumonia	2.59	50.1	56.2	26.4	53.5
Dysentery	2.07	0.7	0.0	0.0	0.7
Malaria	12.52	1.0	1.4	0.5	1.2
Venereal	91.23	60.8	65.6	81.4	57.9
Paratyphoid	0.21	0.0	0.0	0.0	0.0
Typhoid	0.21	0.0	0.0	0.0	0.2
Measles	20.28	55.6	21.5	50.7	25.8
Meningitis	0.22	4.5	2.7	4.0	1.6
Scarlet fever	0.50	18.9	2.5	18.4	13.1

* Enlisted men only, both white and colored.

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," in the issue of February 2, appeared the following order: "*To his home* and to the inactive list, Major ALBERT J. OCHSNER, Chicago; on account of being physically disqualified for active service, Capt. FRANCIS M. EDWARDS, Centralia." This should be understood as two orders, namely: *To his home* and to the inactive list, Major ALBERT J. OCHSNER, Chicago; and *to his home* and to the inactive list on account of being physically disqualified for active service, Capt. FRANCIS M. EDWARDS, Centralia.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Hoboken, N. J., for duty and on completion *to his proper station*, Col. ELBERT E. PERSONS.

To New Haven, Conn., for inspection and on completion *to his proper station*, Col. GEORGE H. BUSHNELL.

To report to the Surgeon-General for duty in his office, Col. JAMES R. CHURCH.

To Camp Greene, Charlotte, N. C., for inspection and on completion *to his proper station*, Lieut.-Col. CHARLES F. MORSE. For temporary duty, from Camp McClellan, Major CONDON C. McCORNACK. As orthopedic surgeon, from Camp Meade, Lieut. HAROLD D. ROGERS.

To Lake City, Fla., for inspection and on completion *to his proper station*, from Camp Joseph E. Johnston, Lieut.-Col. JOSEPH Y. PORTER.

To Washington, D. C., as medical member of examining boards and assistant recruiting officer, Aviation Section, Signal Corps, Lieut.-Col. SAMUEL M. DE LOFFRE.

To Fort Monroe, Va., and Salisbury, N. C., for inspection and on completion *to his proper station*, Senior Surgeon JOSEPH H. WHITE.

To Camp MacArthur, Waco, Texas, for temporary duty, from Camp Logan, Major SAMUEL S. CREIGHTON.

To Muncie, Ind., for inspection and on completion *to his proper station*, Major JOHN R. McKNIGHT.

To San Francisco, Calif., for treatment, from Camp Lewis, Major EUGENE G. NORTHINGTON. For duty, from Philippine Department, Lieut. HERMAN G. MAUL.

To West Point, N. Y., U. S. Military Academy, for dufy, from Fort Oglethorpe, Major HOWARD H. BAILY.

To Camp Hancock, Augusta, Ga., for temporary duty, Capt. THEODORE C. FEGLEY.

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, from Camp Meade, Lieut. HASKETT L. CONNER.

To Camp Upton, Long Island, N. Y., as orthopedic surgeon, from Camp Lee, Lieut. HARVEY E. WEBB.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. JOSEPH H. MURPHY.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. JAMES McALLISTER.

To Fort Totten, N. Y., for duty, from Fort Totten, Lieut. SETH H. MILES.

To Kelly Field, San Antonio, Texas, with the neuropsychiatric board to examine the command in his specialty, Lieut. GORDON F. WILLEY.

Resignation from Medical Corps, National Guard, accepted, Lieuts. GEORGE F. HOLLAR, GEORGE C. WILLIAMSON.

Honorably discharged from the Medical Corps, National Guard, Capt. CHARLES M. SEIVERS; Lieuts. FORD A. BARNES, ROBERT L. BARROW, LOUIS P. LANE, Jr. On account of physical disability incident to service and incurred in line of duty, Lieut. ISAAC G. COOK.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Fort Bayard, New Mexico, for duty, from Camp Jackson, Lieut. OTIS W. LITTLE, Mount Vernon.

To Fort Monroe, Va., for duty, from Fort Oglethorpe, Lieut. LEON C. ELLIS, Florence.

To Fort [illegible] for instruction, Capt. THOMAS H. STREET, Alexander [illegible] JOHN T. CALLAWAY, ROBERT G. LOVELADY, [illegible] JAMES F. BEAN, Brundidge; WILLIAM S. McELRATH [illegible], JAMES O. MORGAN, Piedmont. For duty, HENRY [illegible], Birmingham.

To [illegible] for duty, from Fort Oglethorpe, KOSSUTH R. CAMMA[illegible].

To his home [illegible] honorably discharged from the M. R. C., Lieut. RAYFORD [illegible], Franklin. On account of physical disability existing [illegible] entrance into the service, Lieut. JAMES L. NORTHINGTON, [illegible].

Arizona

To San Antonio, [illegible] Kelly Field, Aviation Camp, as member of tubercu[illegible] SPENCER D. WHITING, Phoenix.

Arkansas

To Camp [illegible], for duty, from Fort Oglethorpe, Lieut. MAC McLENDON, [illegible].

To [illegible] duty, Lieut. EDWARD O. DAY, Little Rock.

To [illegible] instruction, Capt. ELFRED G. HEARN, Arkadelphia.

To [illegible] Field, Signal Corps, Aviation School for duty, JOSEPH S. DAVIDSON, Marvell.

To their homes and honorably discharged, Lieut. WILLIAM B. CENTER, [illegible]. On account of physical disability which existed prior to his entrance into the service, Lieut. GROVER C. BRUCE, Dalark.

California

To [illegible], California, for duty, from San Francisco, Capt. FREDERICK [illegible] ALLEN, San Francisco.

To [illegible] for orthopedic instruction, Capt. ERNEST W. CLEARY, San Francisco.

To Camp Kearny, [illegible] Vista, for duty, Capt. JOHN A. BALSLEY, San Monica; Lieuts. LOWELL C. FROST, Beverly Hills; FRED C. SHURTLEFF, Los Angeles.

To Fort McHenry, Md., for duty, from Camp Sevier, Capt. HOWARD C. NAFFZIGER, San Francisco.

To Fort Riley for instruction, Lieuts. FREDERIC B. WEST, Los Angeles; BYRON Y. MILLER, San Luis Obispo.

To Mineola, Long Island, N. Y., Hazelhurst Field, for duty in connection with the Medical Research Board, from Washington, D. C., Capt. JAMES L. WHITNEY, Sausalito.

To New York City, Cornell Medical College, for instruction in military roentgenology, then *to Hoboken, N. J.*, for duty, from Fort Mason, Capt. HOWARD E. RUGGLES, San Francisco. *Neurological Institute*, for instruction, from Camp Kearny, Capt. BYRON P. STOCKEY, Lieut. CARL W. RAND, Los Angeles.

To report to the Commanding General, Western Department, for assignment to duty, from duty as a drafted man at Fort Riley, Lieut. HARRY S. HOLMES, San Francisco.

To San Antonio, Texas, Kelly Field, as orthopedic surgeon, from Camp Stanley, Capt. JOHN M. HENCH, Pacific Grove.

To San Francisco, Letterman General Hospital, as orthopedic surgeon, Capt. EARL N. GREENWOOD, San Francisco. For duty, Capt. LAWRENCE H. HOFFMAN, San Francisco; Lieut. WILLIAM L. ADAMS, Fresno; from Camp Kearny, Capt. HARRY E. FOSTER, Berkeley; Lieuts. ROBERT B. HILL, Los Angeles; JAMES R. SNYDER, Sacramento.

To St. Louis, Mo., Washington University Medical School for instruction, from Fort Riley, Lieut. GEORGE W. PURCELL, San Francisco.

To Western Department for assignment to duty, Lieuts. PAUL DeW. BARNES, Berkeley; LEO D. SCOTT, Long Beach; OLIVER W. BUTLER, Los Angeles; MELVIN A. SHADE, Oakland.

To his home and honorably discharged from the M. R. C. on account of physical disability which existed prior to his entrance into the service, Capt. LEONARD W. ATKINSON, Napa.

Honorably discharged, Lieut. CLYDE B. LAUGHLIN, Bay Point. On account of physical disability existing prior to entrance into the service, Lieut. BURRELL O. RAULSTON, Los Angeles.

Colorado

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Capt. AMOS L. BEAGHLER, Denver.

To Denver as assistant recruiting officer, in addition to his present duties at that place, Capt. CUTHBERT POWELL, Denver.

To Fort Riley for instruction, Lieut. ALBERT W. DEWEY, Denver.

To New Haven, Conn., to inspect a tuberculosis hospital and on completion *to his proper station*, Capt. ALEXIUS M. FORSTER, Colorado Springs.

To New York City, Neurological Institute, for instruction, from Camp Bowie, Capt. LEWIS H. McKINNIE, Colorado Springs.

To Williamsbridge, N. Y., as tuberculosis instructor, from Army Medical School, Major GERALD B. WEBB, Colorado Springs.

Connecticut

To Fort Oglethorpe for instruction, Lieut. ROBERT E. CONWAY, Hartford; from duty as a private at Camp Devens, Lieut. JAMES P. McMANUS, New Haven.

To New Haven, Conn., as medical member of examining board and recruiting officer, Aviation Section, Signal Corps, from Mineola, Lieut. EUGENE M. BLAKE, New Haven.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into service, Lieut. EDWARD A. WILLIAMSON, Stamford.

District of Columbia

To Fort McHenry, Md., for duty, from Allentown, Pa., Capt. CARLTON D. HAAS, Washington.

To Mineola, Long Island, N. Y., Hazelhurst Field, *for duty in connection* with the Medical Research Board, from Washington, D. C., Majors EDWARD G. SEIBERT, WILLIAM H. WILMER, Washington.

To report in person to the Surgeon-General of the Army for duty in his office, Capt. WILBUR A. SAWYER, Washington.

To Rochester, Minn., Mayo Clinic, *for instruction* and on completion *to Camp Dodge,* for duty, from Fort Oglethorpe, Lieut. L. BRUCE KLINE, Washington.

To Walter Reed General Hospital, Takoma Park, D. C., from New York City, Lieut. STUART C. JOHNSON, Washington.

Florida

To Camp Joseph E. Johnston, Jacksonville, Base Hospital, Lieut. ARTHUR W. ERKFITS, St. Petersburg. *For* duty, from Fort Oglethorpe, Lieut. ALBERT H. WILKINSON, Jacksonville.

To Camp Upton, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. GROVER C. HARDIE, Fort Pierce.

To Fort Oglethorpe for instruction, from Camp Lee, Lieut. JULIAN E. GAMMON, Jacksonville.

To his home and honorably discharged, Lieut. JOHN D. ADAMS, Milligan.

Georgia

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. MOSES B. COPELOFF, Atlanta; DENNIS F. WELDON, Danielsville.

To Camp Dodge, Des Moines, Iowa, for duty, Lieuts. WILLIAM M. TAPPAN, Augusta; CLAUDE A. ALMOND, Lithonia.

To Camp Joseph E. Johnston, Jacksonville, Fla., Base Hospital, Lieuts. EDWARD KING, GEORGE H. NOBLE, Jr., Atlanta; SAM M. NOWELL, Carterville; KINSEY E. FOSTER, College Park; PAUL H. CHRISTIAN, F. L. COSBY, Jr., JOHN D. VERNER, Jr., Columbus; DAVID H. GARRISON, Cornelia; WARREN L. HALL, *Micholls; WILLIAM A. DEAN, Rome; MYLES B. SHARKEY,* Waycross; LEON E. BRAWNER, Whigham.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieuts. CLEVELAND *W. FINDLEY, Broxton; HENRY P. LYON,* Mystic; ISAAC J. PARKERSON, Eastman.

To Fort Hancock, N. J., for duty, from Fort Oglethorpe, Lieut. MINTON C. McAFEE, *Macon.*

To Fort Oglethorpe for instruction, from Camp Gordon, Capt. WALPOLE C. BREWER, Atlanta. For instruction and on completion *to Camp Cody* for duty, Capt. ROBERT C. EVE, Augusta. For instruction, Capt. JOHN W. DANIEL, Savannah; Lieuts. CHESTER O. MIDDLEBROOKS, Bogart; HORACE F. STILTNER, Chickamauga; WILBUR N. SCOTT, Devereux; WARREN M. ROYAL, Fitzgerald; from Fort McPherson, Lieut. GROVER C. GAMBRELL, Rutledge.

To New York City, Neurological Institute, for instruction, from Camp Wadsworth, Capt. WELDON E. PERSON, Atlanta.

To Rockefeller Institute for instruction in the serum therapy of pneumonia, Lieut. CHARLES C. HINTON, Macon.

To their homes and honorably discharged, Lieuts. DENNIS F. WELDON, Danielsville; WILLIAM E. POWELL, Lumber City; HUGH K. PHILLIPS, Santee. *On* account of physical disability which existed prior to entrance into service, JAMES R. SMITH, Atlanta; ELISHA F. BOMAR, Lyons.

Idaho

To Fort Riley for instruction, Lieuts. MAURICE H. TALLMAN, Boise; DUNCAN L. ALEXANDER, Twin Falls.

Illinois

To Chicago, Ill., for instruction, Lieut. DANIEL H. LEVINTHAL, Chicago.

To Camp Beauregard, Alexandria, La., and *Camp Sheridan,* Montgomery, Ala., for duty, and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. SAMUEL L. OREN, Lewistown.

To Camp Lee, Petersburg, Va., for duty, from Camp Lee, Capt. WILLIAM T. WILLIAMSON, Lexington.

To Camp Logan, Houston, Texas, for duty, *from* Camp Doniphan, Capt. CHARLES H. PARKES, Chicago.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. ROBERT H. HENDERSON, Chicago.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ARVID E. KOHLER, Moline.

To Camp Travis, Fort Sam Houston, Texas, *for temporary* duty, Lieut. EUGENE S. TALBOT, Jr., Chicago; from Fort Riley, Lieuts. GILBERT E. BRERETON, CLIFFORD W. WELLS, Chicago.

To Cleveland, Ohio, for instruction and on completion *to Camp Custer* for duty, from Camp Sherman, Major JOSEPH R. HOLLOWBUSH, Rock Island.

To Fort Hancock, N. J., for duty, from Fort Oglethorpe, Lieut. FRANK E. NAGEL, Secor.

To Fort Leavenworth, Kan., Department Laboratory, from Fort Riley, Lieuts. EARL W. GILROY, Chicago; HARRY A. MYERS, Joliet.

To Fort Monroe, Va., for duty, from New York City, Lieut. GUY M. McLEAN, Chicago.

To Fort Oglethorpe for instruction, from Camp Hancock, Major JOHN W. TURNER, *Chicago;* from Camp Gordon, Capt. JAMES A. BRITTON, Chicago; from Camp Lee, Capt. WILLIAM T. WILLIAMSON, Lexington; from Fort McPherson, Capt. WILLIAM W. HOYT, Chicago. For instruction, *Capts.* OSMAN A. COSS, Saunsmin; WALTER WALDEN, Watertown; Lieuts. ALEXANDER B. McNABB, JOHN GABRIEL O'MALLEY, Chicago.

To Fort Riley as instructor, *from* Camp Doniphan, Major SIDNEY STRAUSS, Chicago. For instruction, Capts. GRANT B. BUSHEE, Arlington; IRWIN S. KOLL, Chicago; Lieut. CARL H. DAVIS, Chicago.

To Fort Slocum, Mineola, L. I., *Fort Wood, N. Y.,* and *Hoboken, N. J.,* for temporary duty, and on completion *to his proper station,* Lieut. WILLIAM W. GAILEY, Bloomington.

To Garden City, Long Island, N. Y., Aviation General Supply Depot, for duty, Lieut. DANIEL F. HAYES, Chicago.

To Governor of Illinois as medical advisor, *Major* JOHN W. DODSON, Chicago.

To Newport News, Va., for duty, Major FRANK S. CHURCHILL, Chicago.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Beauregard,* Lieut. JOHN V. VAN PAING, Chicago; on completion *to Camp Devens,* from Fort Oglethorpe, Lieut. JOHN G. FROST, Chicago; on completion *to Camp Grant,* Lieut. THOMAS A. CARTER, Chicago.

To Rockefeller Institute for instruction and on completion *to Camp Pike,* for temporary duty, from New York, *Major* WILLIAM FULLER, Chicago.

To Walter Reed General Hospital, Takoma Park, D. C., from New York, Capt. BERNARD M. CONLEY, *Wilmette.*

To his home and honorably discharged, from Camp Grant, Capt. JAMES R. TWEEDY, Cobden. *To their homes* and honorably discharged, Lieuts. CHARLES B. GIBSON, Chicago. On account of physical disability which existed prior to entrance into the service, IMAS P. RICE, Oak Park; ROBERT H. JACOBS, Quincy.

Indiana

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. THEOPHILUS P. CAPLINGER, Wallace.

To Camp Pike, Little Rock, Ark., *for duty, Lieut.* CHARLES G. BEALL, Fort Wayne.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. HARRY L. COOPER, South Bend.

To Fort Oglethorpe for instruction, Capt. THOMAS J. DEHEY, South Bend.

To Newport News, Va., for duty, from Camp Devens, Lieut. ASHTON M. BALDWIN, *Marion.*

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Grant,* Rockford, Ill., for duty, from Chickamauga Park, Capt. CLAUDE *DuV. HOLMES, Indianapolis.*

Iowa

To Camp Dodge, Des Moines, Iowa, for duty, Lieut. FLOYD H. WEIDLEIN, Wellman.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. JAMES J. DALY, Decorah.

To Camp Jackson, Columbia, S. C., *as divisional psychiatrist, from* Camp Doniphan, Capt. THOMAS J. HELDT, Cedar Falls.

To Camp Wheeler, Macon, Ga., for duty, from Camp Dix, Lieut. JOHN D. HEXOM, Decorah.

To Fort McHenry, Md., for duty, from Fort Riley, Major CHARLES E. RUTH, Des Moines.

To Fort Moultrie, S. C., for temporary duty, from Fort Moultrie, Lieut. ARTHUR C. STRONG, Burlington.

To Fort Oglethorpe for instruction, Lieuts. WALTER E. FOLEY, Davenport; ROSWELL H. PAYNE, Des Moines.

To Fort Riley for instruction, Capts. HUGH MULLARKY, *Manson;* DYRE H. PELLETIER, New Hartford.

Kansas

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. ROBERT C. DAVIS, Kansas City.

To Fort Riley for instruction, Lieuts. JAMES H. BRYANT, Garden City; FRANCIS B. SHELDON, McDonald.

To his home and honorably discharged, Lieut. MEADE A. BUTTON, Topeka.

Kentucky

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. HOMER A. SUTTER, Newport.

To Camp Meade, Annapolis Junction, Md., cardiovascular board, to examine the troops in his specialty, *from Camp Meade,* Lieut. THOMAS F. MILLER, Glasgow.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. EARL M. CULTER, Covington.

To Fort Oglethorpe for instruction, from Camp Gordon, Capt. HORACE LUTEN, Fulton; from Camp Taylor, Lieut. EDWIN W. MONTGOMERY, Vine Grove. For instruction, *Lieuts. JOSEPH A. SLEET,* Frankfort; RANDOLPH DADE, Hopkinsville.

To Fort Thomas, Ky., for duty, from Cincinnati, Capt. JOHN B. ROBARDS, Harrodsburg; from Camp Custer, Lieut. THEODORE SALLEE, Covington.

To Mineola, Long Island, New York, Hazelhurst Field, *for* duty in connection with the Medical Research Board, from Washington, *D. C.,* Capt. SAMUEL S. SMITH, *Greenup.*

To Rockefeller Institute for instruction and on completion *to Camp Bowie,* Fort Worth, Texas, for duty, Major IRVIN ABELL, Louisville.

To St. Louis, Mo., Washington University, *for instruction in urology* and dermatology, from Camp Shelby, Capt. JETHRA HANCOCK, Louisville.

To Washington, D. C., Washington Barracks, for duty, *from* Fort Oglethorpe, Lieut. HUNTER W. GINGLES, Kirksey.

To their homes and honorably discharged, Lieuts. LITTLETON O. KEEN, Burkesville; HUNTER W. GINGLES, Kirksey; EDWARD L. IRWIN, Louisville; GIDEON W. STONE, Middlesboro.

Louisiana

To Army Medical School, Washington, D. C., for instruction, Lieut. ABRAHAM MATTES, New Orleans.

To Baton Rouge to examine applicants for the Officers' Reserve Corps, Capt. CHARLES McVEA, Baton Rouge.

To Camp Beauregard, Alexandria, for duty, Capt. ABRAHAM J. LEVIN, New Orleans.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Beauregard, Lieut. DAVID B. DAVIS, Bunkie.

To Fort Oglethorpe, for instruction, Lieuts. WILLIAM L. STONE, Homer; EMILE F. NAEF, New Orleans; WILEY H. BILLINGSLEY, Shreveport.

Maine

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. STEPHEN A. COBB, Sanford.

To Camp Lee, Petersburg, Virginia, for temporary duty, Capt. ALFRED MITCHELL, Portland.

To Fort Oglethorpe, for instruction, Lieut. JOHN L. PEPPER, Madison.

Maryland

To Camp Dix, Wrightstown, N. J., for temporary duty, from Fort Myer, Capt. ALEXANDER D. McCONACHIE, Baltimore.

To Baltimore, Md., for temporary duty, and on completion *to his proper station,* Major JAMES BERDLEY, Baltimore.

To Fort Oglethorpe, for instruction, from Camp Gordon, Capt. ALGERNON D. ATKINSON; from Camp Hancock, Capt. ISIDORE ISAAC HIRSCHMAN, Baltimore. For instruction, Lieut. MARCUS D. SMITH, Cambridge.

To New York City, Neurological Institute, for intensive training, Lieut. PHILLIP PEARLSTEIN, Baltimore.

To Philadelphia, Pa., and *New York City,* to inspect the Neurosurgical Schools at these places, and on completion *to his proper station,* Major CHARLES BAGLEY, Jr., Baltimore.

To Rockefeller Institute for instruction and on completion *to Camp Shelby,* for temporary duty, from Neurological Institute, New York, Lieut. GEORGE W. BISHOP, Govans.

Massachusetts

To Albany, N. Y., for duty, from Neurological Institute, New York City, Lieut. HENRY R. VIETS, Boston.

To Army Medical School, Washington, D. C., for orthopedic instruction, and on completion *to his proper station,* from Boston, Capt. MARK H. ROGERS, Boston.

To Camp Devens, Ayer, Mass., for duty, from Camp Devens, Capt. JOHN H. WYMAN, Medway.

To Camp Jackson, Columbia, S. C., for duty, from New York City, Lieut. APPLETON H. PIERCE, Leominster.

To Camp Taylor, Louisvile, Ky., as orthopedic surgeon, Lieut. JOHN B. WEBSTER, Boston.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. CHARLES W. FINNERTY, West Somerville.

To Fort Oglethorpe, for instruction, from Camp Shelby, Capt. FRANCIS R. BURKE, Quincy. For instruction, Lieuts. WILBERT C. HARDY, DAVID W. HOUSTON, Jr., Boston; LUCIEN R. CHAPUT, ARTHUR O. McLAUGHLIN, Haverhill; CLARENCE B. LIVINGSTON, Lowell; WALTER H. LACEY, Quincy; RALPH W. HAYWOOD, JOSEPH H. SHORTELL, Salem.

To Newport News, Va., for duty, from Camp Devens, Lieut. JAMES H. GETTINGS, Boston.

To New York City, Neurological Institute, for instruction, from Boston, Capt. HARRY P. CAHILL, Boston.

To Rockefeller Institute for instruction, and on completion *to Fort McHenry, Md.,* Lieut. BERNARD A. GODVIN, Boston.

To Washington, D. C., for duty in the Surgeon-General's Office, Major KENDALL EMERSON, Worcester.

To their homes and honorably discharged, Lieuts. JOSEPH SEGAL, Boston; WILLIAM R. BYRNE, Framingham.

Mexico

To San Juan, Porto Rico, for duty, from Camp McClellan, Capt SAMUEL H. HODGSON, Mexico.

Michigan

To Camp Custer, Battle Creek, for duty, from Camp Custer, Lieut. HENRY O. McMAHON, Detroit.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. FLOYD N. TOWN, Ann Arbor.

To Camp Travis, Fort Sam Houston, Texas, for temporary duty, from Fort Riley, Lieut. GEORGE D. TREADGOLD, Port Huron.

To Edgewood, Md., United States Filling Station, from Camp Devens, Capt. VICTOR H. DeSOMOSKEOY, Flint.

To Fort McPherson, Ga., for duty, from New York City, Lieut. JOHN T. HODGEN, Grand Rapids.

To Fort Oglethorpe for special inspection and on completion *to his proper station,* Major VICTOR C. VAUGHAN, Detroit. For duty, from Camp Sherman, Lieut. JEROME F. BERRY, Kalamazoo. For instruction, Lieut. THEODORE H. SMITH, Detroit.

To Fort Riley for instruction, Lieut. WILLIAM A. HYLAND, Grand Rapids. For duty with the board examining the command for mental and nervous diseases, from Fort Riley, Lieut. GORDON H. BAHLMAN, Flint.

To New Orleans, La., Charity Hospital, for instruction and on completion *to his proper station,* from Fort Logan H. Roots, Major FRANK SUGGS, Detroit.

To Rockefeller Institute for instruction and on completion to Camp Lee, Petersburg, Va., for duty, from Camp Lee, Capt. HUGH McD. BEEBE, Ann Arbor.

To West Point, New York, for temporary duty, Capt. ALEXANDER R. McKINNLY, Saginaw.

To his home and to the inactive list, Capt. WALTER R. T. SHARPE, Romeo.

To his home and honorably discharged on account of physical disability existing prior to entrance into service, Lieut. EDWARD J. O'BRIEN, Detroit

Minnesota

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. REINHART G. OLSON, Nicollet.

To Camp Pike, Little Rock, Ark., for duty, Capt. WILLIAM G. CARHART, Mineapolis.

To Fort McHenry, Md., for duty, Lieut. WALTER F. BLEIFUSS, Llen

To Fort Oglethorpe as instructor, from Fort Oglethorpe, Capt. EMIL S. GLIST, Minneapolis. For instruction, Capt. CHARLES H. KEENE, Minneapolis

To Fort Riley for instruction, Lieuts. ALICK BERNSTEIN, Naytahwaush; BURTON A. BAIRD, HERMAN C. BUMPUS, Jr., CHARLES M. CLARK, STUART W. HARRINGTON, JAMES R. McVAY, Rochester.

To New York City, Neurological Institute, for instruction, Major WARREN A. DENNIS, St. Paul.

To Toronto, Ontario, Winnipeg, Manitoba, Canada, for study of returned soldiers suffering from peripheral nerve injuries, from Rockefeller Institute, Major JAMES F. CORBETT, Minneapolis.

To Walter Reed General Hospital, Takoma Park, D. C., from New York, Lieut. RICHARD B. GIRVIN, Villard.

To West Point, New York, United States Military Academy, from Fort Riley, Major DANIEL M. SHEWBROOKS, Minneapolis.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. JOHN A. FREEBORN, Fergus Falls.

Mississippi

To Camp Hancock, Augusta, Ga., for duty, Lieut. FRANCIS S. HILL, Grenada.

To Fort Oglethorpe, for instruction, Lieuts. HAL C. JOHNSON, Dundee; LEE K. MAYFIELD, Inverness; JOHN H. WOOD, Ruleville; MARTIN L. HOLLAND, Schlater.

To Washington, D. C., Washington Barracks, for duty, from Fort Oglethorpe, Lieut. ARTHUR A. SPARKMAN, Cleveland.

Missouri

To Belleville, Ill., Scott Field Aviation Camp, for conducting a nutritional survey of that camp, from Army Medical School, Capt. DON ROSCO JOSEPH, St. Louis.

To Camp Pike, Little Rock, Ark., for duty, Lieut. LAWRENCE D. ENLOE, Jefferson City.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. DAVID C. BOSSERMAN, St. Louis.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Mount Clemens, Mich., Capt. FREDERICK E. WOODRUFF, St. Louis.

To Fort Leavenworth, Kan., Department Laboratory, for duty, from Fort Riley, Lieut. GEORGE F. COOPER, Kansas City.

To Fort Monroe, Newport News, Hampton, Va., for temporary duty, and on completion *to his proper station,* Capt. GREENE D. McCALL, Fulton.

To Fort Oglethorpe, for instruction, Capts. IRA H. MILLER, Louisiana; ROBERT H. GIBSON, St. Louis; from Camp Meade, Capt. FREDERICK B. SPENCER, Hannibal; from St. Louis, Capt. FRANK J. TAINTER, St. Charles; from Camp Hancock, Lieut. ROBERT E. BYRNS, St. Louis; from Camp Taylor, Lieut. ROY W. JOHNSON, St. Louis. For instruction, Lieut. RAY E. WILSON, LeBelle.

To Fort Riley, for instruction, from Fort Riley, Lieut. ELMER J. BILLICK, Kansas City.

To Hoboken, N. J., for temporary duty, from Fort Riley, Major EDWIN H. SCHORER, Kansas City. For duty, from Fort Oglethorpe, Lieut. CLARENCE M. WESTERMAN, St. Louis.

To New York City, for duty, Capt. HILLEL UNTERBERG, St. Louis.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for instruction, Capt. WALTER C. G. KIRCHNER, St. Louis.

To West Point, N. Y., United States Military Academy, from Fort Riley, Lieut. ROY F. MILLS, Odessa.

Montana

To Camp Dodge, Des Moines, Iowa, for temporary duty, Major THOMAS C. WITHERSPOON, Butte.

Nebraska

To Camp Doniphan, Fort Sill, Okla., for duty, from Camp Doniphan, Lieut. KARL F. E. WEGENER, Exeter.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieuts. JOSEPH D. McCARTHY, Omaha; RILEY E. ROCHE, Signey.

To Fort Oglethorpe, for instruction, from Camp Gordon, Lieut. NEIL P. McKEE, Atkinson; from Omaha, Lieut. ABRAHAM GREENBERG, Omaha.

To Fort Riley, for instruction, Lieut. JESSE F. STRONG, Barada. For instruction and on completion *to his proper station,* from Fort Riley, Lieut. CHARLES W. WAY, Wahoo.

To Omaha, Aviation Section, Signal Corps, as medical member of examining board and recruiting officer, from Omaha, Lieut. CLAUDE T. UREN.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge,* for duty, from Camp Dodge, Capt. JOSEPH A. HENSKE, Omaha.

To St. Louis, Washington University, for instruction, Lieut. ROBERT C. PANTER, Dorchester.

To his home and honorably discharged, on account of physical disability which existed prior to his entrance into the Army, Lieut. IRVIA C. MUNGER, Lincoln.

Nevada

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. ROLAND D. RUSSELL, Owygee.

To Portland, Ore., Aviation Section, Signal Corps, for duty, from duty as a private at Camp Lewis, Lieut. RAY V. LARZALERE, Kimberly.

To Western Department for assignment to duty, Capt. CHARLES W. R. VON RADESKY, Carson City.

New Jersey

To Camp Alfred Vail, Little Silver, N. J., for duty, Lieuts. GEORGE V. MORSE, Bloomfield; CHARLES F. VOORHIS, Palmyra.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Meade, Lieut. CHARLES P. LINGLE, Arlington.

To Fort McDowell, Calif., for duty in his specialty, from Alcatraz, Calif., Lieut. EMIL W. MEYER, Passiac.

To Fort Monroe, Va., for duty, from Fort Oglethorpe, Lieut. EARL E. GRIGGS, Haskell.

To Fort Oglethorpe, for instruction, Lieuts. CHARLES DABE, South Orange; CARROLL R. ERICHBAUM, Upper Montclair; from Army Medical School, Lieut. ALBERT G. HULETT, East Orange.

To Mineola, L. I., N. Y., Hazelhurst Field, in connection with the Medical Research Board, from Washington, D. C., Capt. ELBERT S. SHERMAN, Newark.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Major JAMES S. BROWN, Montclair.

To his home and honorably discharged, Lieut. HENRY J. HARP, Sussex.

New Mexico

To Walter Reed General Hospital, Takoma Park, D. C., from New York, Lieut. SAMUEL H. ECKLES, Silver City.

New York

To Camp Custer, Battle Creek, Mich., for duty, from Fort Brady, Lieut. JAMES L. HORNDORF, Rochester.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. JAY L. TOUCHSTONE, Blackwell's Island; RAPHAEL WOLFE, Brooklyn; ROY D. CHAMPLIN, Hobard; ARTHUR W. URAN, New York City.

To Camp Dix, Wrightstown, N. J., from Camp Lee, Capt. ROLAND C. MEISENBACH, Buffalo; to examine the command for nervous and mental diseases on completion of his leave of absence, from Camp Bowie, Lieut. WILLIAM G. DICKINSON, Oneonta.

To Camp Doniphan, Fort Sill, Okla., for duty, from Camp Jackson, Capt. FREDERICK C. ROBBINS, Hornell.

To Camp Hancock, Augusta, Ga., for duty, Lieut. FRED GLUCKSMAN, Bronx.

To Camp Lee, Petersburg, Va., for temporary duty, and on completion *to his proper station,* Major EDWARD K. DUNHAM, New York City.

To Camp Meade, Annapolis Junction, Md., for temporary duty, and on completion *to his proper station,* Major RICHARD H. HUTCHINGS, Ogdensburg.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. JAMES F. X. LOORAM, Brooklyn.

To Camp Sherman, Chillicothe, Ohio, as orthopedic surgeon in the camp, Capt. KARL OSTERHUAS, Brooklyn.

To Camp Taylor, Louisville, Ky., as division psychiatrist, from Camp Taylor, Capt. MORRIS J. KARPAS, *New York City.*

To Camp Upton, L. I., N. Y., for duty, from Fort Oglethorpe, Lieuts. FREDERICK BERNSTEIN, Long Island; JASON H. CONGER, Utica.

To Fort Bayard, N. M., for observation and treatment, from Fort Benjamin Harrison, Lieut. JOHN R. FISHER, Utica.

To Fort Clark, Texas, as divisional psychiatrist, from Camp Beauregard, Major EDWIN G. ZABRISKIE, New York City.

To Fort Jay, N. Y., for duty, Lieut. ROBERT T. IRVINE, Ossining.

To Fort McHenry, Md., for duty, Lieuts. WILLIAM D. CAWTHON, Brooklyn; LEE GOTTSCHALK, New York City; MAXWELL C. MONTGOMERY, Rome.

To Fort Oglethorpe, for instruction, from Camp Hancock, Capt. CHARLES H. ERWAY, Elmira; from Camp Meade, Capt. STEPHEN A. MAHADY, Utica; from Camp Shelby, Capt. JAMES W. PRICE, Saranac Lake; from Camp Gordon, Lieut. FRANCIS A. GLASS, New York City. For instruction, Lieuts. HYMAN DANISH, Bedford Hills; MERLE Q. HOWARD, Blackwell's Island; JULIUS M. BLANK, ISAAC E. GREENBURG, JOSEPH LINTZ, Brooklyn; EARL W. THEMA, Buffalo; JOSEPH FELSON, ARCHIE E. GORDIN, EDWIN HENES, Jr., PAUL B. JENKINS, I. EDWARD LISS, ALFRED F. ORTH, MAURICE RASHBAUM, New York City; GEORGE BIBBY, Pottersville; CHARLES R. MILLER, Ray Brook. For duty, Lieuts. FRANK J. MANGOLD, Brooklyn; JOHN L. BYRNES, Hudson Falls.

To Fort Ontario, N. Y., for duty, from Fort *Oglethorpe,* Lieut. ARCHIBALD K. BENEDICK, Sherburne.

To Fort Riley, for temporary duty, Lieut. JOHN F. CURTIN, New York City.

To Fort Sam Houston, Texas, Department Laboratory, and on completion *to his proper station,* from Camp McClellan, Capt. RALPH A. KINSELLA, New York City.

To Garden City, Long Island, N. Y., Aviation General Supply Depot, for duty, Capt. HERBERT R. CHARLTON, Bronxville; Lieuts. ARCHIE L. DEAN, Jr., CECIL R. FRANK, Brooklyn; HERMAN J. BALLEN, Long Island; JACOB BOWER, REVERDY V. W. ESTILL, HYMAN FISHER, ISAAC M. WILZIN, New York City; JOHN D. CARROLL, Troy.

To Hoboken, N. J., for duty, Lieut. JAMES I. SCHOONMAKER, West Coxsakie.

To Lakewood, N. J., for inspection, and on completion *to his proper station,* Major ALFRED COHN, New York City.

To Newport News, Va., for duty, Lieut. RALPH COLP, New York City; from West Point, N. Y., Lieut. JOSEPH D. KELLY, Brooklyn.

To New York City, for instruction in orthopedic surgery, Lieut. ERNEST S. BULLUCK, New York City. Cornell Medical College, from New York, Lieut. WILLIAM G. HERRMAN, Brooklyn. Neurological Institute, for intensive training in neuro-surgical service, Lieut. EDWARD L. ROCHFORT, New York City.

To report to the Surgeon-General of the Army, from Army Medical School, Lieut. EARL H. LORMOR, Buffalo.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Custer, Capt. HARRY R. STONE, New York City. For instruction, and on completion *to Camp Upton,* for duty, from Camp Lewis, Lieut. ANTHONY W. M. MARINE, Brooklyn.

To Rochester, N. Y., for duty, from New York City, Capt. CLAYTON K. HASKELL, Rochester; Aviation Section, Signal Corps, for duty, Lieuts. HARRY A. MILLER, Ilion; RAYMOND J. BROWN, ERIC S. GREEN, Rochester.

To Rockefeller Institute, for instruction, Lieut. GEORGE P. OLCOTT, Jr. For instruction and on completion *to proceed to Army Medical School,* for duty, from New York City, RAY SEXTUS NELSON, New York City.

To San Francisco, Calif., Letterman General Hospital, for duty if found physically qualified, Lieut. RAE W. WHIDDEN, New York City.

To Saratoga Springs to inspect and on completion *to his proper station,* Capt. C. BURNS CRAIG, New York City.

To Trenton, Camp Dix, Wrightstown, New Jersey, and Philadelphia, Pa., to investigate the prophylactic stations established at these points, and on completion *to Washington, D. C.,* for duty in the Surgeon-General's Office, from New York City, Capt. ALEC N. THOMSON, Brooklyn.

To Washington, D. C., for duty in the State War and Navy Department Building, from Army Medical School, Lieut. PHILIP W. DeGARMO, Rhinebeck.

To Williamsbridge, New York City, Long Island, for temporary duty, and on completion *to his proper station,* Lieut. LESTER L. ROOS, New York City.

To the inactive list, Major WILLIAM T. HELMUTH, New York City.

To their homes and honorably discharged, Capt. JOSEPH MUIR, New York City; Lieuts. CLARENCE L. SICARD, Amsterdam; CARSON C. FAULKNER, Arena; HAROLD M. WEINBERG, Brooklyn. On account of physical disability existing prior to entrance into the service, Capts. HENRY B. GILLEN, Cohoes; JAMES H. IRISH, Syracuse.

North Carolina

To Camp Greene, Charlotte, for temporary duty on completion of his course at Neurological Institute, New York, Lieut. WILLIAM M. SCRUGGS, Rutherfordton.

To Camp Upton, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieuts. WILLIAM H. SLOAN, Garland; ROBERT L. PAYNE, Monroe; ALLIE D. MORGAN, Scotland Neck.

To Curtis Bay, Md., for duty, Lieut. JUNIUS R. VANN, Jr., Fayetteville.

To Fort Oglethorpe for instruction, Lieuts. CHARLES T. VERNON, Burlington; THOMAS M. STANTON, High Point; HUGH E. CLARK, Rocky Mountain. From duty as a private at Camp Sevier, Lieut. CHARLES H. LUPTON, New Bern.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. EDWIN B. FEREBEE, Raleigh.

North Dakota

To Camp Jackson, Columbia, South Carolina, for temporary duty, from Fort Oglethorpe, Major ERIC P. QUAIN, Bismarck.

To Fort Oglethorpe for instruction, from Camp Taylor, Lieut. HERBERT B. WENTZ, Cerono.

Ohio

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. JOHN A. FILAK, Lakewood.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Meade, Lieut. WILLIAM N. TAYLOR, Columbus.

To Chicago, Ill., for orthopedic instruction, Lieut. JOHN K. LAWSON, Dayton.

To Fairfield, Ohio, Wilbur Wright Field, for duty, Lieuts. ALLEN H. DUNTON, Cincinnati; JEREMIAH E. KERSCHNER, Columbus.

To Fort McHenry, Md., for temporary duty, from Columbus Barracks, Major GEORGE C. SCHAEFFER, Columbus.

To Fort Oglethorpe for instruction, Capt. FREDERICK C. HERRICK, Cleveland; Lieuts. SILAS P. THARP, Cincinnati; JOHN J. RAMEY, Rock Camp; WILLIAM C. PONTIUS, Warren; from Camp Taylor, Lieuts. IRVIN W. MAYBERRY, Scottown; CHARLES B. HAMMA, Springfield.

To Fort Riley for temporary duty, from Camp Wheeler, Capt. ALBIN M. PAINTER, Youngstown.

To Jefferson Barracks, Mo., for temporary duty, from Camp Dodge, Capt. CARLTON D. POSTLE, Columbus.

To Rockefeller Institute for instruction in the serum therapy of pneumonia, Lieut. LOUIS A. MITCHELL, Newark.

To Walter Reed General Hospital, Takoma Park, D. C., from New York City, Lieut. ROY F. DRURY, Akron.

To his home and to the inactive list, Capt. ALBERT F. LONGEWAY, Cleveland.

Honorably discharged, Lieut. HERMAN W. HONOCK, Ridgeville Corners.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. OTHO J. POWELL, Ashland; JOHN J. SOUTH, Massillon.

Oklahoma

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Bowie, Lieut. JAMES G. HARRIS, Muskogee.

To Camp McClellan, Anniston, Ala., for duty, from Camp Doniphan, Lieut. EDGAR A. JONES, Sayre.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. THOMAS J. NUNNERY, Granite.

To Fort Riley for instruction, Lieuts. CHARLES C. CONLEY, Frederick; ROBERT S. RILEY, Hartshorne; WALTER C. THRELKELD, Oklahoma City.

To his home and honorably discharged, Lieut. JOHN B. HAGGARD, Foraker.

Oregon

To Mayo Clinic, Rochester, Minn., for instruction and on completion *to his proper station,* from Camp Beauregard, Capt. JUSTIN M. WAUGH, Hood River.

To Portland, Aviation Section Signal Corps, for duty, Lieuts. CHARLES E. HAWKS, Forest Grove; JOHN W. SIFTON, Hood River; CHARLES F. CROPP, Independence; FRANK L. RALSTON, La Grande; MEARLE C. FOX, Lakeview; ROBERT ST. C. GRAFFIS, WILLIAM A. SHEA, Portland; WALTER W. LOONEY, Salem; JOHN L. ELWOOD, The Dalles.

To San Francisco, Calif., Letterman General Hospital, from Camp Lewis, Lieut. ERNEST H. STREIT, Portland.

To Vancouver Barracks, Fort Canby, Fort Columbia, Fort Stevens, Washington, to give instruction on personal hygiene, and on completion *to his proper station,* from Camp Lewis, Major CALVIN S. WHITE, Portland.

To Western Department for assignment to duty, Lieut. MERVIN H. SMITH, Clatskanie.

Pennsylvania

To Camp Devens, Ayer, Mass., for duty, Capt. JAMES H. WHITECRAFT, Wilkinsburg; from Fort Oglethorpe, Lieuts. WILLIAM G. FRANCIS, Philadelphia; ROBERT B. BROWN, Pittsburgh.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Doniphan, Lieut. JOHN P. MAUS, Philadelphia; from Neurological Institute, Lieut. STEPHEN S. LANDIS, Pittsburgh.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. CLARENCE E. KING, Elmora.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. WILLIAM J. DAVIDSON, New Castle.

To Chickamauga Park, Ga., for duty, from Camp Dix, Capt. WILLIAM J. REDDY, Shenandoah.

To Edgewood, Md., United States Filling Station, for duty, Lieuts. CLARENCE W. FREY, Dallastown; CHARLES C. WALLACE, Josephine; JOSEPH ASPEL, Philadelphia.

To Fort Oglethorpe for duty, from Camp Lee, Capt. HENRY A. ROTHROCK, West Chester. For instruction, Capt. THOMAS M. STAHLMAN, Pittsburgh; Lieuts. JOHN McG. DICKSON, Gettysburg; LEWIS L. ROGERS, Kingston; CHARLES E. NICHOLSON, HARRY RUBINSTEIN, Pittston; CARL B. ROSENKRANS, Stroudsburg; from Camp Gordon, Lieuts. WILLIAM W. WOODS, Mont Alto; HENRY G. GODFREY, Philadelphia; from Camp Hancock, Lieut. WILLIAM C. SPALDING, Cresson; from Camp Shelby, Lieuts. ANDREW ANDERS, Philadelphia; WILLIAM J. DAVIS, Wilkes-Barre.

To Fort Riley for instruction, Lieut. IRWIN J. OBER, Greensburg.

To Garden City, Long Island, N. Y., Aviation General Supply Depot, for duty, Lieut. DONALD B. McHENRY, Bloomsburg.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Camp Greene, Lieut. FRED W. DAVIS, Scranton. Neurosurgical School, Neurological Institute, for instruction, from Fort Oglethorpe, Lieut. JOHN E. QUAY, Philadelphia.

To Philadelphia, Evans Dental Institute, as instructor, from Camp Dix, Major GEORGE M. DORRANCE, Philadelphia.

To Pittsburgh, School of Military Roentgenology, as assistant instructor, from Pittsburgh, Capt. LEROY S. TOWNSEND, Beaver Falls.

To report to the Surgeon-General of the Army, from Army Medical School, Lieut. FRANK H. LONG, Coopersburg.

To Rockefeller Institute for instruction and on completion *to Camp Greene,* for temporary duty, from Neurological Institute, New York, Lieut. MARSHALL C. RUMBAUGH, Dorranceton.

To Saratoga Springs, N. Y., for inspection, and on completion *to his proper station,* Capt. JOHN H. MUSSER, Jr., Philadelphia.

To Schooley's Mountain, N. J., and *Ossining, N. Y.,* to inspect property and on completion *to his proper station,* Lieut. CHARLES C. GANS, Chambersburg.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. WILLIAM T. VAN PELT, Philadelphia; Lieuts. GEORGE A. POUST, Hughesville; MALCOLM D. HOLBAN, Slatington.

To their homes and honorably discharged, Lieuts. FRANK L. BAUM, Athol; ARTHUR E. BROWN, Greenville; ABRAHAM FINKELPEARL, Pittsburgh.

Honorably discharged, Lieuts. BENJAMIN BOWMAN, Philadelphia; THOMAS B. JOHNSON, Towanda. On account of physical disability existing prior to entrance into the service, Lieuts. THOMAS E. McCONNELL, Parkersburg; ALPHONZO PADILLO, Philadelphia.

Philippine Islands

To Philippine Department for assignment to duty, Capts. SAMUEL K. CARSON, Iloilo; BENJAMIN L. BURDETTE, PAUL CLEMENTS, CHARLES R. JOHNSON, JOHN A. JOHNSTON, Manila.

Rhode Island

To Camp Fremont, Palo Alto, Calif., for duty, from Camp Fremont, Lieut. JAMES HAMILTON, Jr., Providence.

To Camp Lee, Petersburg, Va., for duty, from Fort Ethan Allen, Lieut. RICHARD METCALF, Providence.

To Fort McHenry, Md., for duty, from Camp Upton, Lieut. NORMAN B. COLE, Newport.

To Fort Oglethorpe for instruction Lieut. CHARLES F. GORMLY, Providence.

To Lakewood, N. J., for temporary duty, Lieut. HARRY D. CLOUGH, Providence.

South Carolina

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. LANDRUM W. WOOD, Greer.

To Camp Wheeler, Macon, Ga., for temporary duty, from Neurological Institute, New York, Capt. SAMUEL C. BAKER, Sumter.

To Fort Monroe, Va., for duty, Lieut. WARREN H. BURGESS, Sumter.

To Fort Oglethorpe for instruction, from duty as a private at Camp Jackson, Lieut. BELDRIDGE E. KNEECE, Monetta.

To West Point, N. Y., United States Military Academy, from Fort Oglethorpe, Major THOMAS R. MARSHALL, Columbia.

South Dakota

To Fort Oglethorpe for instruction, from New York City, Major TILLISON J. WOOD, Huron.

To Fort Riley for instruction, Lieut. OSCAR R. WRIGHT, Huron.

Tennessee

To Camp Upton, Long Island, New York, for duty, from Fort Oglethorpe, Lieuts. WALTER A. BELL, Cloverdale; LLOYD S. NEESE, Del Rio.

To Fort Monroe, Va., for duty, from Fort Oglethorpe, Lieut. AAREIEL E. G. GOODLEE, Murfreesboro.

To Fort Oglethorpe for instruction, Capt. JOSEPH B. HIBBITTS, Union City, Lieuts. HOWARD A. IJAMS, Knoxville; SAMUEL T. PARKER, Lexington; JAMES E. CARSON, Maryville; GRADY M. ALLISON, Mayland; WARREN G. ALFORD, Memphis; HARRY H. GOLDBERG, DAVID B. JAMES, Nashville; from Camp Gordon, Lieut. ENOCH SEALE, Nashville. For duty, Lieut. JAMES M. SMYTH, Camden.

To Memphis, Aviation Section, Signal Corps, for duty, from Portland, Ore., Capt. LOUIS LEVY, Memphis.

To West Point, New York, United States Military Academy, from Fort Oglethorpe, Capt. JOHN M. LEE, Nashville.

To their homes and honorably discharged, Lieuts. ALBERT B. DISMORE, Chattanooga; WALTER A. BELL, Cloversdale; ROBERT L. DOSSETT, Tullahoma.

Texas

To Camp Pike, Little Rock, Ark., for duty, Lieut. CHARLES C. ADAMS, Longview.

To Camp Sheridan, Montgomery, Ala., from El Paso, Major WOODS W. LYNCH, Midland.

To Fort Oglethorpe for instruction, Capt. NATHANIEL T. MOORE, El Paso.

To New York City, Neurological Institute, for intensive training in his specialty, Lieut. ROBERT B. McBRIDE, Dallas.

To San Antonio, Texas, Brooks Field, Aviation Section, Signal Corps, for duty, Lieuts. WALTER A. BLACK, Mount Pleasant; BRADFORD R. A. SCOTT, San Antonio.

To Southern Department, Fort Sam Houston, for assignment to duty, Lieut. PHAU R. OUTLAW, El Paso.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD W. TISDALE, Clyde.

Utah

To Fort Oglethorpe for instruction, from Camp Gordon, Lieut. GEORGE E. McBRIDE, Magna.

Vermont

To their homes and honorably discharged on account of physical disability which existed prior to entrance into the service, Lieuts. FRANCIS J. ENNIS, Burlington; WALDO R. HARKNESS, Montpelier.

Virginia

To Camp Lee, Petersburg, Va., for duty, Lieut. WILLIAM W. McCHESNEY, Abingdon.

To Fort Monroe, Va., for duty, from Camp Lee, Capt. JOSEPH W. HOPE, Hampton; Lieut. EDWARD LeB. GOODWIN, Ashland.

To Fort Oglethorpe for instruction, Lieuts. HAMIL S. SCOTT, Emory; FRANK G. SCOTT, Orange; EVERETT R. FERGUSON, Richmond; FORREST T. SUMMERS, Snowville; from Richmond, Lieuts. LEVIN F. MAGRUDER, JOSEPH T. McKINNEY, ROBERT G. WIATT, Richmond.

To Lake Charles, La., Gerstner Field Signal Corps Aviation Section, for duty, from Fort McHenry, Md., Major WILILAM E. DRIVER, Norfolk.

To Newport News, for duty, Lieuts. JAMES F. HUBBARD, Avon; VEOLE O. CARUTHERS, Ferell; WILLIAM DeH. HITZHUGH, Morrisville; ROBERT WHITEHEAD, Richmond.

Washington

To Camp Lewis, American Lake, for duty, Capt. FLOYD A. BIRD, Kelso.

To Fort Riley for instruction Capt. KENELM WINSLOW, Seattle.

To New York City, Neurological Institute, for instruction, Capt. HARRY E. ALLEN; from Camp Lewis, Capt. HARRY G. WILLARD, Tacoma.

To Portland, Ore., Aviation Section, Signal Corps, for duty, Lieuts. SHIRLEY D. BARRY, Puyallup; SAMUEL GOODGLICK, ERNEST S. REEDY, Seattle; OLAF E. CHRISTEFFERSON, Tacoma.

To Western Department for assignment to duty, Capt. HARRY B. CLOUGH, Tonasket; Lieuts. LEWIS B. COLLIER, Seattle; JOHN W. ROSE, Walla Walla.

West Virginia

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. MILTON D. FLANARY, Lakewood.

To New York City, Bellevue Hospital, for instruction, and upon completion to his proper station, from Camp Meade, Lieut. ERNEST F. GOTT, Bluefield.

Wisconsin

To Camp Grant, Rockford, Ill., for duty, from Camp Grant, Capt. ELIAS BIBBY, Milwaukee.

To Camp Hancock, Augusta, Ga., for duty, Lieuts. JOHN F. SENNETT, Milwaukee; from Camp Hancock, ADELARD E. GENDRON, River Falls.

To Camp Pike, Little Rock, Ark., for temporary duty, Capt. EMIL F. BAUR, Milwaukee.

To Fort Oglethorpe for instruction, from Camp Gordon, Capts. HARRY C. MIX, Green Bay; MICHAEL R. WILKINSON, Oconomowoc; Lieut. HENRY J. PYLE, Zeeland.

To Fort Riley for instruction, Capt. GEORGE H. CONKLIN, Superior; Lieut. J. GREGORY HOFFMAN, Hartford.

To Rochester, Minn,., Mayo Clinic for instruction, and on completion *to Camp Sherman,* for duty, Capt. SAM W. DOOLITTLE, Lancaster.

To West Point, New York, United States Military Academy, from Fort Riley, Lieut. ARTHUR D. SMITH, Gilmanton.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. CHARLES A. DAWSON, River Falls.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Spiritualists to Be Arrested.—The Illinois department of registration and education has had warrants issued for the arrest of several spiritualists, in order to determine the limits to which "healers" may go in treating ailments without first obtaining a license to practice medicine.

Madison County Wants Sanatorium.—At the meeting of the physicians of Madison County in Granite City, February 2, it was decided to take advantage of the law recently passed by the Illinois State Medical Board, to petition for the establishment of a tuberculosis sanatorium for the county.

Winnetka Doctor in France.—Dr. Alice Barlow Brown, Winnetka, has been in France for several months looking after the women and children back of the fighting line on the western front. The funds for Dr. Brown's work have been raised by Winnetka people through the chart system and the gift shop that has been established. A Winnetka dispensary has been established back of the lines near Toul, and at Toul and Nancy, Dr. Brown looks after more than 300 women and children a week.

Chicago

Smallpox in Theological School.—Since January 21, twenty-eight cases of smallpox have occurred in a theological school on the west side. Those in charge of the school are said to oppose vaccination.

Medical Schools Merge.—It is reported that the Jenner Medical College and the Chicago Hospital College of Medicine have been merged and that the two institutions are now located at the site heretofore occupied by the latter.

Arrested by Federal Authorities.—Dr. Pierre Koglowski, whose office is at 975 Milwaukee Avenue, was recently arrested by the federal authorities. It is reported that a search in his office revealed literature opposed to the government's conduct of the war.

Institute of Medicine to Hold Open Meeting.—Prof. H. C. Sherman of Columbia University will speak on "Fundamental Requirements in Human Nutrition" before the Institute of Medicine of Chicago on February 27, at 8 o'clock, in Recital Hall, Fine Arts Building. The meeting will be opened to friends of the members, medical and nonmedical.

Robert Koch Society.—At the thirty-first meeting of the Robert Koch Society for the Study and Prevention of Tuberculosis, held February 21, at the City Club, a paper was read by Dr. Max Biesenthal on "Nontuberculous Lesions of the Lungs, Diagnosticated Tuberculous." Discussions were also held on "Clinical Findings," "Roentgen Ray" and "Complement Fixation."

Service Flag Dedicated.—The North Shore Branch of the Chicago Medical Society gave a dinner at the Edgewater Beach Hotel, February 16, at which more than 700 were present. Dr. Charles J. Whalen presided as toastmaster, and addresses were made by Drs. Charles E. Humiston, William A. Pusey, Wilbur F. Pool, John V. Fowler and Judge McEwen. A service flag with ninety stars was then presented by Dr. Joseph F. Biehn, president of the society, and was accepted on behalf of the medical department of the Army, and the members in service, by Col. Henry I. Raymond, department surgeon, Central Department. The Right Rev. C. P. Anderson, Bishop of Chicago, then delivered an address on "America's Place and Part in the World's War." The program was preceded by an entertainment and succeeded by dancing.

KANSAS

New Officers.—At the annual meeting of the Salina County Medical Association, held in Salina, Dr. John K. Harvey was elected president, Dr. Charles M. Jenney, vice president; Dr. William N. Mowery, secretary, and Dr. Andrew G. Anderson, treasurer, all of Salina.

Maternity and Infant Care in Rural Kansas.—In Rural Child Welfare Series No. 1, Publication 26, the National Children's Bureau, Elizabeth Moore gives the results of a survey of a typical Kansas county (not named) covering prenatal and postnatal care of mothers and children together with general economic and sanitary condition, etc. In this particular county, in which the natural health conditions as to climate, etc., are good, the findings were favorable, on the whole, the infant mortality in the group studied in the district being 40 per thousand. Only one baby in five is weaned before it is 9 months old. The mothers are interested in learning all they can about the care of their children, showing this interest in the "babies' days" held throughout the county, at which infants are weighed, measured and examined. Only one infant in ten fails to have its birth recorded, the fault in this county lying with a very small number of physicians. It was found that, except in times of harvest and threshing, the work of the farm women is perhaps not over hard, but it is said that only of late and to a limited degree is prenatal supervision of mothers appreciated as a means of preventing needless deaths of mothers. According to the findings of the children's bureau, earlier and more frequent consultation of physicians and the employment of trained nurses as visitors before confinement are essential for adequate medical and nursing care. In the county studied, some progress has been made along these lines.

KENTUCKY

Chiropractor Indicted.—It is reported that a chiropractor named W. H. Dunn was indicted at Louisville recently for practicing without a license from the state board of health.

Nurses' Fees.—The Jefferson County Nurses' Association has passed a resolution providing that, beginning with March 1, nurses will ask $35 a week for cases instead of $25, as at present.

Home Nursing Course.—Dr. Henry Enos Tuley, superintendent of the city hospital, has announced a three months' course in home nursing at the hospital, beginning February 11. It is hoped by this plan to make many young women available as nurses' aids in the hospitals of the Army, and to supply the demand for practical nursing in the home.

MARYLAND

Coeducation at the University.—It is reported that the faculty of the University of Maryland has voted to admit women students beginning in October, 1918.

Pneumonia on the Increase.—The Bolhuisic Health Department reports that, despite the advent of warm weather and the inauguration of a campaign by Health Commissioner Blake, pneumonia appears to be on the increase, since there were reported in one day fourteen new cases and thirteen deaths. From the present prospects, the records of the health department for the week ending today, will show a high mortality.

Conference with District Boards.—Major Frank Billings, Chicago, medical aid to Provost Marshal General Crowder, addressed the physicians of the medical advisory boards, local boards and district boards of the state at Osler Hall, Baltimore, February 16. The address was followed by a conference between the physicians who are to pass on the physical qualifications of the men to be selected for service in the National Army. The purpose of the meeting was to give the physicians a better idea of the physical defects which disqualify a man for military service in order that a greater degree of cooperation between the members of the boards and the military authorities may be brought about.

Bill on Practice of Medicine.—In the general assembly, a bill was recently introduced to revise the laws of the state regulating the practice of medicine, surgery and osteopathy, to provide for the establishment of a board of examiners, and to define its duties. The bill has been agreed on by the Medical and Chirurgical Faculty of Maryland and by the osteopaths' association. The homeopathic profession is also included. The bill provides for the registering of all practitioners of medicine. Those failing to register are subject to arrest for misdemeanor. The board created by the bill is authorized to organize on the first Tuesday of June, 1918, and shall be constituted as follows: Six members of the present board of medical examiners, representing the Medical and Chirurgical Faculty, two members representing the Maryland State Homeopathic Medical Society, and two members representing the Maryland Osteopathic Association. There is no provision in the bill which specifically prohibits Christian Scientist healers from pursuing their calling. On the other hand, there is no clause which opens the way for the pursuit of their profession.

MISSOURI

Jackson County Appreciative.—The Jackson County Medical Society has adopted a plan for caring for the practices of their members who have joined the Medical Reserve Corps. The members of the society will refund to the absent member or to his family one third of the fees collected from patients of members of the Medical Reserve Corps.

New Liberty Loan Campaign.—The St. Louis Medical Society has been requested by a representative of Secretary of the Treasury McAdoo, to take charge of the solicitation of physicians in St. Louis in the next Liberty Loan campaign. The society has accepted this responsibility and appointed Dr. Horace W. Soper chairman of the committee to conduct the campaign among doctors.

Doctors Win Suits.—A suit for alleged malpractice against three practitioners in the southeastern part of the state, sued jointly, was decided in favor of the physicians. Another case in the same section of the state was dismissed on motion of the physician's attorney, when the plaintiff failed to file a bond for costs as requested by the attorney for the physician and ordered by the court.

Personal.—Dr. Robert C. Strode, Mexico, was thrown from a buggy in a runaway accident, February 8, and painfully injured.——Dr. Charles R. Woodson, St. Joseph, who has been seriously ill, is now reported convalescent.——Dr. Eugene Carbaugh, Kansas City, was appointed city director of health, January 25, and has selected a new staff for the Emergency and General hospitals under the health boards reorganization.

Sailors and Soldiers' Club.—A sailors and soldiers' club has been organized by a number of women of St. Louis to furnish entertainment for sailors or soldiers living in St. Louis or passing through the city. The management of the club has asked that a committee of medical men be appointed to cooperate to give medical attention, if needed, to any of the men, and a number of hospitals of St. Louis have volunteered to give medical care to sick sailors and soldiers.

To Prevent Abuse of Charity.—Dr. Edward L. C. Richter, a member of the St. Louis Medical Society and alderman from his ward, has introduced a bill in the board of aldermen to prevent the abuse of charity in the city. The bill requires all persons who apply for charitable assistance or treatment at any of the city institutions or to any private individual or agency, to make a statement of his social and financial condition on blanks provided by the city. The bill follows closely the provisions of the New York City law. The St. Louis Medical Society has indorsed the measure and will work for its passage.

NEW YORK

Otisville Tuberculosis Hospital for Army.—A large tract of land adjoining the municipal tuberculosis hospital at Otisville has been turned over to the government for the erection of a hospital to house 800 soldiers suffering from tuberculosis. The pavilions of the New York City Health Department on North Brother's Island have also been offered to the government. It is expected that the new hospital at Otisville will be completed within four months.

Bill to Amend Public Health Law.—There is before the legislature of this state a bill to amend the public health law in relation to reports of officials and employees to the state department of health. In the law to be amended, the duties of the health commissioner are defined as follows:

> The commissioner of health shall take cognizance of the interests of the health and life of the people of the state and all matters pertaining thereto.

An amendment introduced by Senator Whitney at the request of the health commissioner reads as follows:

> The written reports of officials and employees of the state department of health on questions of fact under the public health law, or under the sanitary code or any local health regulation, shall be presumptive evidence of the facts so stated and shall be received as such in all courts and places. The persons making such reports shall be exempt from personal liability for the statements therein made if they have acted in good faith.

New York City

Dinner to Overseas Hospital Staff.—A farewell dinner was given to the Women's Overseas Hospital staff at the Cosmopolitan Club, February 11. The women expected to sail some time during the week. The Overseas Hospital is supported by the National Women's Suffrage Association.

Hospital For Palestine.—A gift of $25,000 has been donated by Mrs. Peter J. Schweitzer of Brooklyn for the purpose of building and maintaining an eye hospital in Palestine, where trachoma and other eye diseases are prevalent. A medical unit will leave for Palestine as soon as transports and transportation can be obtained.

Personal.—Dr. Vera Danschakoff of Moscow has been appointed assistant professor in anatomy at the College of Physicians and Surgeons.——Major Grayson M. P. Murphy, who recently resigned as Red Cross commissioner to Europe, has reported for duty with the American expeditionary forces.——Dr. John A. Harris, who retired from the practice of medicine to manage several business enterprises, has been appointed special police commissioner, without pay, to regulate traffic conditions in the city.——Dr. Royal C. Van Etten has been appointed temporary second assistant to the second surgical division of Roosevelt Hospital.

War Hospital Opens New Section.—The War Hospital of Columbia University, which occupies part of the site of the Columbia athletic oval at Gunhill Road and Bainbridge Avenue, opened a new section, February 15. Eighteen new wards have been opened, doubling the original hospital capacity, so that 1,000 patients may be cared for at the same time. The hospital is intended exclusively for the care of soldiers brought back from France. Col. Edward R. Schreiner, chief surgeon and commander of the hospital staff, has been ordered to the government hospital at Fort Riley, Kan., and will be succeeded by Major William H. Bishop.

NORTH DAKOTA

Northwestern Society Elects Officers.—The annual meeting of the Northwestern Medical Association was held at Minot, January 15, and the following officers were elected: president, Dr. Edward M. Ransom, Minot; vice president, Dr. Frederick K. Kolb, Granville, and secretary-treasurer, Dr. Peter A. Nestos, Minot.

Appeal for Reorganized Health Department.—The *Bulletin* of the state board of health for January contains the statement that the present state health organization is incapable of securing satisfactory results. In demanding a reorganization, the *Bulletin* sets forth, among other things, the following facts: Every eight hours a citizen of North Dakota dies from tuberculosis, and 26 per cent. of deaths in the state occur among children under 5 years of age. Only about 2 cents per capita are spent for health protection and, as a consequence, the state ranks thirty-third in the list of states in respect to efficient health service. There is no adequate system of health bookkeeping, that is, registration of births and deaths and reporting of infectious diseases.

PENNSYLVANIA

Revocation of Licenses.—The attorney-general of Pennsylvania has ruled that the presence of all of the members of the Pennsylvania Bureau of Medical Education and Licensure is necessary to revoke a license or to vote recognition to a medical college, whereby its graduates may become eligible for a license in that state.

Remission of Dues.—In November the Bucks County Medical Society adopted resolutions remitting the dues of members in active military service.——The Philadelphia County Medical Society has unanimously adopted the following recommendation of the board of directors, "The board of directors recommend that all the dues of the members who have gone into active military service be remitted for the present year."

Philadelphia

Memorial for Captain Bradley.—Memorial services for Capt. Clarence D. Bradley, M. R. C., U. S. Army, were held in the forum of the Temple University, February 5. Dr. Bradley died from cerebrospinal meningitis, January 29, at Camp Greene, Charlotte, N. C.

Graduate Schools Merge.—It is reported that the Philadelphia Polyclinic and College for Graduates in Medicine has merged with the Graduate Medical School of the University of Pennsylvania. The latter was formed a year or two ago by the merging of the Medico-Chirurgical College and Hospital.

Smallpox Quarantine.—Quarantine was established for the second time in a week in the block bounded by Oxford Street, Columbia Avenue, Twenty-Fourth and Twenty-Fifth Streets, when four women, residing in a lodging house in that district, suspected of having symptoms of smallpox were removed to the Philadelphia Hospital for observation.

New Dean.—The board of corporators of the Woman's Medical College of Pennsylvania announces the election of Dr. Martha Tracy as dean of the college. Dr. Tracy is a graduate of Bryn Mawr College, 1898, and of the Woman's Medical College in 1904. She has occupied the chair of physiologic chemistry and hygiene at the college for a number of years and has been acting dean since June 1917.

Personal.—Dr. Max H. Bochroch has been appointed visiting psychiatrist to the Philadelphia General Hospital.——Dr. Henry H. Lott has been appointed operating chief to the laryngologic dispensary of the Jefferson Medical College Hospital.——The civil service commission named the following men as eligible for appointment to positions as assistant diagnosticians: Drs. Howard C. Fretz, Maurice Ostheimer, George E. H. Johnson and Clarence W. Schaeffer; and for appointment as supervising medical inspectors in the department of health and charities, Drs. Joseph D. Lehman and Martin J. Nevinger.

Venereal Ward for Women and Children Established.—Building alterations are nearing completion at the college hospital of the Woman's Medical College of Pennsylvania, where a venereal ward and dispensary is soon to be opened for the care of women and children. In the equipment and maintenance of this new department the Woman's Hospital, the West Philadelphia Hospital for Women and the college hospital will cooperate. The resident medical and nursing staffs of the three hospitals will participate in the regular rotation of service. Dr. Rose Hirschler has been elected chief of the department.

VIRGINIA

Personal.—Dr. Joseph C. Dunford, Norfolk, on duty at Camp Lee, is reported to be ill in the base hospital, Camp Lee.——Dr. George M. Converse, U. S. P. H. S., has begun the work of consolidating the Norfolk County and Portsmouth City Health Board, and forming a health district.——Dr. T. Edwin Baird has been appointed physician to the Norfolk City Home.——Dr. Arthur L. Wilson has been elected president of the board of health of Lynchburg.

CANADA

Queen's Bars Negro Students.—No more negro students are to be admitted to Queen's University, Kingston, Ont. This is due to the objection of patients to the presence of negroes at hospital clinics. There are now fourteen negro medical students at Queen's and these will be allowed to finish their fourth, but not their fifth year, because of the fact that most clinical work has to be done in that year.

Promotions.—Under the date of January 30, the London *Gazette* gives the following promotions in the Canadian Medicals: Capts. Henry E. Paul, Fort Williams, Ont.; R. F. Flegg, Ottawa; George O. Taylor, Moncton, N. B.; Robert M. Luton, McW. Taylor, Alexander H. Taylor, Goderich; M. C. W. Brown, D. McClellan, P. W. Pilcher, Nelson G. Cooper, Prince Albert, Sask.; Thomas L. Butters, Lafleche, Sask.; George C. Hale, Henry P. Wright, to be temporary majors.

McGill's Service.—More than 2,000 students, graduates and teachers from McGill University, Montreal, have joined the military forces in the three and one half years of war. Three hundred of these have gained military honors, and 236 are among those who have been killed. The McGill corps was originally organized by Sir Auckland Geddes, now director-general of recruiting in England, who was a professor of anatomy at McGill, when the war broke out.

Birkett Returns.—Col. Herbert S. Birkett, C. M. G., dean of the medical faculty of McGill University, Montreal, and who has been overseas in command of their base hospital, has returned home on account of ill health. Col. John M. Elder has taken over the command of the hospital. While in England, Colonel Birkett visited many of the British and Canadian hospitals; and he speaks especially of the remarkable work which is being done in the Sidcup Military Hospital where all facial deformities are given special attention. He also speaks in terms of the highest praise of the work at St. Dunstan's Hospital, where blind soldiers are given a new view of life, learning basket making, stenography, telephone operating, etc. Colonel Birkett says the only way to win the war is to kill the Bosches.

University News.—Prof. Watson Bain, occupying the chair of applied chemistry, University of Toronto, has been granted leave of absence for the duration of the war. He is going to Washington, D. C., where he will be on the staff of the Canadian mission.——At the antitoxin laboratory of the University of Toronto, the doctors are working toward securing a serum which will counteract the gas used on the soldiers by the enemy at the front. Capt. Alfred H. W. Caulfield, who went overseas with the University Base Hospital three years ago but who has been doing special research work in London, England, has been brought back from overseas to engage in the work.——Capt. Don A. Warren, M.B., Hamilton, who recently resigned from the R. A. M. C., has been given a commission in the C. A. M. C., and has been appointed to the King's Canadian Red Cross Hospital at Bushy Park, England.

Public Health Exhibits.—The Ontario Board of Health has established public health, child welfare, and tuberculosis exhibits which include moving pictures. Each exhibit is in charge of a competent man and a nurse, who, during the fall and winter months, make a tour of the various towns of the province in the interest of public health education. The nurse who accompanies the exhibit endeavors to secure the cooperation of the local physicians in holding public clinics for children's diseases, care of babies, etc.——Since the war began, the Ontario Board of Health has distributed 1,622,962 doses of vaccine, which amount has provided three doses for each soldier, the total value being $170,000. It has also distributed 10,150 doses in Newfoundland, worth about $1,000. All the typhoid and paratyphoid vaccine is distributed free. There has been practically no typhoid among the Canadian forces.

Hospital News.—The National Cash Register Company's property in Toronto has been purchased by the Military Hospitals Commission, and is to be converted into a hospital for returned soldiers. It is to be developed as the chief Canadian center for orthopedic work. The existing building has accommodation for about 400 patients, but additions will increase its capacity to 900 patients. It is intended to make it a 1,500 bed hospital. The Orthopedic Hospital in North Toronto will continue to be employed as an auxiliary to the new center.——The board of control, Toronto, in keeping down the tax rate for 1918, has decided that no grants should be made this year to hospitals other than the per diem rate set forth in the statutes. Late in 1917, the hospitals of Toronto secured a special grant of $189,582 from the city. The treasurer of the city brought in an estimate of $200,000 for the present year, but the controllers struck the item out. This policy will probably hasten a financial arrangement whereby all the hospitals will come under municipal control.

Personal.—Col. William B. Hendry, Toronto, recently in command of the University of Toronto Base Hospital at Basingstoke, England, has received the distinguished service order.——Capt. M. Joseph Casserly, R. A. M. C., Toronto, has returned to England.——Dr. Ian Thompson, a brother of Dr. Finlay Thompson, Toronto, a native of Nefoundland, was surgeon on the British destroyer *Strongbow*, when that vessel was sunk in a recent naval engagement in the North Sea.——Dr. Roberts, a member of the provincial government of New Brunswick, is taking an active part in providing medical inspection for the schoolchildren of that province.——Major George T. McKeough, C. A. M. C., Chatham, Ont., has been appointed honorary president of the Great War Veterans' Association.——Col. Leonard C. Harris, C. A. M. C., Moncton, N. B., who is in command of a 2,000 bed hospital at Whitby, England, was recently mentioned in despatches by General Haig.——Dr. Edna Mary Guest, Elginfield, Ont., has been appointed medical officer of the Scottish Women's Hospital on the island of Corsica.——Major Julian S. Boyd, C. A. M. C., has been appointed senior medical officer at the Toronto Exhibition Camp.——Capt. Archibald F. Laird, R. A. M. C., Blenheim, Ont., has been awarded the military cross. Captain Laird advanced with his men in the face of heavy machine gun fire, and remained for three days until the ground was consolidated. Although wounded in the shoulder, he continued to attend the wounded. He has been mentioned in despatches by Sir Douglas Haig.——The military cross has been awarded to Capt. Dimock S. Cassidy, R. A. M. C., formerly of Tatamagouche, N. B. He went down into a particularly dangerous mine to give aid to the wounded. He was severely gassed and is now undergoing treatment in a London hospital, England.——Capt. William Bernard MacDermott, M.D., Lang, Sask., who has been in Russia with the Anglo-American hospital, recently disbanded, is back in England.——Capt. Donald A. Warren, Hamilton, Ont., has resigned his commission in the R. A. M. C. He went to France in November, 1915, and while attached to the Royal Warwickshire Regiment, won the military cross.——Dr. William C. White, late of Pittsburgh, who has been connected with health service of the volunteer relief work in France, has been made chief of the bureau of tuberculosis of the American Red Cross in France.——Capt. James A. Dickson, Toronto, with the R. A. M. C. in India and Mesopotamia, returned to Toronto in January.——Capt. Charles J. M. Willoughby, Toronto, is returning from Mesopotamia.——Capt. Eric K. Clarke, Toronto, son of Dean Clarke of the faculty of medicine, has left for England to be attached to No. 4 University of Toronto Base Hospital, Basingstoke, England.——After a lengthy service in Greece and England, Col. Alexander Primrose, Toronto, is on his way home. He has lately been consultant in surgery to the Canadian forces in England.——Drs. James T. Wall and C. M. McGill, both of McGill University, Montreal, have been elected members of the Royal College of Surgeons.——Lieut.-Col. Norman S. Shenstone, Toronto, has returned after several months in the Ontario Military Hospital, Orpington, England.——Lieut.-Cols. Irving H. Cameron and Donald McGillivray, Toronto, have returned to Toronto from a tour of inspection of the military hospitals as far as Victoria, B. C., and have proceeded to Ottawa.

GENERAL

Dr. Means Honored.—At the recent meeting of the Association of American Medical Colleges in Chicago, Dr. William J. Means, Columbus, Ohio, who for many years has been chairman of its executive council, was elected as president. Dr. Means has been a prominent figure in the progress in recent years in medical education in the United States.

Bequests and Donations.—The following bequests and donations have recently been announced:

New York Foundling Hospital, $10,000, the proceeds of a benefit opera recently given.

People's Hospital of Philadelphia, a bequest of $10,000 by the will of Emilie C. Christman.

St. Joseph's Home for Orphans, Sisters of the Poor, and Sisters of Mercy Hospital, Philadelphia, each equal shares of the estate of John J. O'Malely, amounting to about $67,500.

Presbyterian Hospital of Chicago, $10,000 and bequests to the Chicago Home for Incurables, Visiting Nurses' Association and other charities, by the will of Ettie Soper Smith.

Citizens Aid Society, Minneapolis, about $1,000,000, as an endowment fund, by the will of George H. Christian.

Sanatorium Association Meeting.—The first mid-winter session of the Mississippi Valley Sanatorium Association will be held at the Municipal Tuberculosis Sanatorium, Chicago, March 12 and 13. On the first day there will be a symposium on sanatorium administration, taking the place of the laborators in the sanatorium, practical graduated exercises, and education of the tuberculous. In the afternoon the effect of war on the tuberculosis sanatorium and the question of whether temporary construction of buildings for the care of the tuberculosis is practical will be taken up. In the evening, Health Commissioner Robertson will deliver an address on "Suppression versus Repression of Tuberculosis in the Community." The morning of the second day will be devoted entirely to the symposium on the "Tuberculous Child," including the housing of the tuberculous child, the handling of contacts by the sanatorium, and the differentiation of the potentially tuberculous child from the active tuberculous child. In the afternoon papers will be read on "Looking Forward Into Tuberculosis Sanatorium Work," and "Primary and Secondary Pulmonary Tuberculosis."

LONDON LETTER

London, Jan. 29, 1918.

Trench Fever

Among the new maladies brought to light by the war is a condition of obscure causation termed "trench fever," a name given because it arose in the front area and not on the lines of communication *until the establishment* of schools of instruction to which men came from the front area, created foci of infection. Several organisms, including spirochetes and a hemogregorin, have been described as the cause, but *none* has stood the test of criticism. The director-general of the medical services in France appointed a committee consisting of Lieut.-Col. W. O. O. Beveridge and Cols. Sir John Rose Bradford, Sir Wilmot Herringham and Sir William Leishman to investigate various forms of fever of unknown origin which, though they never caused death, were very prevalent in the army. The aims of the committee were: (1) to determine whether these cases of unknown pyrexia include more than one class of fever, and if so to classify them; (2) to observe the symptoms distinctive of each class that might be established, and thereby to distinguish one class from another and from all known fevers; (3) to investigate the etiology and pathology of these fevers, and (4) to discover the best means of prevention and cure. They have now presented a report on the first two of these objects. They find that the cases of pyrexia of unknown origin may be divided into three classes: (*a*) the relapsing class (trench fever); (*b*) a class with a single short, initial bout of fever and no relapse, and (*c*) a class with prolonged initial fever. The cases of trench fever form two groups: (1) regular relapsing with definite normal intervals, and (2) irregular relapsing in which the intervals are not so definite or, if definite, in which the temperature remains above normal. The cases of trench fever occurred in all situations—trenches, dugouts, huts, tents and billets. The onset was usually sudden. Headache was invariable; it was nearly always frontal, and often referred to the back of the eyes. There was often conjunctivitis (pink eye). Other symptoms were shivering, dizziness or giddiness; several complained of weakness or faintness. There were pains in the back or lower limbs in most cases. In a few there was no pain other than headache *at the onset, and this was sometimes the only pain throughout.* On admission to the hospital, the patients complain of headache and pains in the lower limbs, usually in the thighs and knees. They often look very toxic, and are flushed and sometimes drowsy. The tongue has a central streak of yellow or brown fur with red edges, the appetite is bad, the bowels constipated. There is no distention of the abdomen. In a few cases there was a trace of albuminuria, which disappeared in two or three days. The temperature chart is marked by a series of bouts of fever, lasting three or four days, in which the temperature as a rule rises rapidly and falls rather more slowly. The bouts vary greatly in number; most patients have three or four. The spleen was sufficiently large to be palpable below the ribs in about a third of the cases. Apart from headache, which is universal and often very persistent, pains are felt in various parts of the body, *especially in the lower limbs. In Class B there was only* one short initial bout of fever, lasting under six days. The symptoms resembled those of the preceding class. In Class C there were symptoms like those of Class [illegible] ut the fever was prolonged, and lasted from six [illegible] n days o[illegible] longer.

The Food Situation

With the continuance of the war, the food problem is becoming more difficult, and rationing of the most important foods is coming into force. So far only sugar has been rationed—at the rate of 8 ounces per head per week. February 25, the rationing of meat and fat will come into force. A drastic order limiting the consumption of meat and fats has been introduced for hotels. Two meatless days are to be observed. In the London area the days will be Tuesday and Friday, and elsewhere in the United Kingdom Wednesday and Friday. No meat may be served with breakfast. No milk may be served or consumed as a beverage, except with tea, coffee, cocoa or chocolate, or by children under 10 years of age. Guests must provide their own sugar for sweetening beverages. No more than 1½ ounces of bread, cake, bun, scone or biscuit may be served with afternoon teas. The quantity at present allowed is 2 ounces. The permitted quantities of meat, flour, bread, sugar (except in the case of continuous residents) butter, margarin and other fats must not exceed the gross quantities allowed for the meals served during a week, ascertained in accordance with the following scale of average quantities per meal:

	Meat, Oz.	Sugar, Oz.	Bread, Oz.	Flour, Oz.	Butter, Margarin and Other Fats, Oz.
Breakfast	0	0	3	0	⅓
Luncheon (including midday dinner)	3	⅐	2	1	⅓
Dinner (including supper and meat tea)	3	⅐	3	1	⅓
Tea	0	0	1½	0	¼

The basis of rationing under the old order is as follows:

	Meat, Oz.	Sugar, Oz.	Bread, Oz.	Flour, Oz.
Breakfast	2	2/7	2	0
Luncheon (including midday dinner)	5	2/7	2	1
Dinner (including supper and meat tea)	5	2/7	2	1
Tea	0	2/7	2	0

It will be observed, that, while the bread ration has been increased by 1½ ounces, the quantity of meat permitted is reduced from 12 to 6 ounces a day. Breakfast is going to be a difficult meal in the business type of hotel. Apparently no milk may be served with porridge, and the bacon course is forbidden. On a meatless day no meat, poultry or game may be served or consumed in any public eating place. Between the hours of 5 a. m. and 10:30 a. m., no meat, poultry or game may be served or consumed on any day. No milk may be served or consumed as a beverage or as part of a beverage, except with tea, coffee, cocoa or chocolate as usually served; but it may be given to children under 10 years of age. Exemption from these provisions relating to meat and milk may, however, be obtained by a resident in a public eating place on the certificate of a duly qualified physician showing that it is in the interest of his health. Regarding teas in public places, no person may be served with or consume between the hours of 3 p. m. and 5:30 p. m. more than 1½ ounces in the whole of bread, cake, bun, scone and biscuit.

The Army Council has decided to reduce in certain respects the food ration of those men in the home armies whose duties approximate to those performed by the civilian population. This has been prompted by the temporary deficiency in the supply of certain essential foods for the civilian population, particularly meat. This means a heavy reduction in the number of calories represented by the dietary, and also considerably complicates the arrangements for rationing large numbers of men. For similar reasons and particularly for the relief of tonnage, it has also been decided to reduce the grain allowance to horses and other animals employed by the armies at home. For the purposes of the new scale of reduced rations, the home forces have been divided into two categories: (*a*) troops under training for service over sea and mobile troops engaged in home defense; (*b*) all other troops at home. In the case of the former troops, the present home scale of rations, which is considerably less than that which prevails at the front, will remain unaltered. In the case of the troops in the second category, the following changes are to be made: meat from 12 ounces a day to 8 ounces; sugar from 2 ounces a day to 1 ounce; bacon from 2 ounces a day to 1 ounce; tea from ¼ ounce a day to ⅜ ounce. Thus the meat ration is reduced by one third and sugar and bacon by one half, while the tea ration is increased by one half. The revised sugar allowance (1 ounce) is slightly less than the present allowance for civilians, which is 1⅐ ounce a day. In the case of horses, mules and other beasts of burden, the daily oat ration is to be reduced by 2 pounds per head. This, it is hoped, will not only effect a great saving in tonnage, but also release valuable food for human consumption.

PARIS LETTER

Paris, Jan. 24, 1918.

Antitoxin Treatment of Gas Gangrene

Dr. Sacquépée recently discussed the antitoxin treatment of gas gangrene before the Réunion médico-chirurgicale de la IV-e Armée. This being, first of all, a toxic disease, and the intoxication being manifestly of microbic origin, it is evident that these germs are toxin producing. In gas gangrene, until now, only two species of germs have been isolated, the *vibrion septique* and the *Bacillus bellonensis*. Both organisms produce toxins in vitro, and both are used easily for the production of an antitoxic serum. So far as the prophylactic treatment is concerned, in cases in which much tissue is destroyed (large arterial lesions, large hematomas, and much destruction of inaccessible muscle tissue), the treatment *à distance* is difficult because there is no circulation through the region, and hence no means of defense. However, even under these circumstances the treatment is always of some value, because the interruption of the circulation is not always complete. In some cases in which one cannot prevent entirely the appearance of gas gangrene, grafted on an ischemic gangrene, one can at least check its evolution.

METHOD OF PROCEDURE

The serum treatment is carried out as follows: 1. Under the skin, *à distance*, from 30 to 40 c.c. of each serum are injected. 2. Into the depths of the limb, to the limits of the necrotic tissue (or susceptible of necrosis), the same dose of serum, diluted with physiologic sodium chlorid solution, is injected. 3. Serum is injected into the wound. These three injections are repeated after twelve hours. In other cases only 20 c.c. of each serum are injected. As for the curative treatment, the chances of success are always greater the earlier the serum is used. When possible, one should determine the pathologic conditions present. In the edematous form it is the *B. bellonensis* which is usually present, and then more of the corresponding serum is injected. On the other hand, in the gaseous form, both germs are usually present; if, as is the rule, the presence of one or the other germ is not disclosed sufficiently early, then the two serums in equal quantities are injected. As a general rule, in all forms and whatever the condition, at least three injections of high serum strength must be made. For the edematous form the antibellonensis serum is used, 80 c.c., half being injected intravenously and half subcutaneously, and 20 c.c. of the antivibrion septique serum are injected subcutaneously. The subcutaneous injection, in the same dose, is repeated after four or six hours, and then again after from sixteen to twenty hours. The general state of the patient must be the guide in the treatment. For the gaseous form, from 30 to 50 c.c. of each serum are injected, half being injected intravenously and half subcutaneously. The injections as outlined above are repeated in the treatment of the edematous form. The results obtained from this method of treatment have been very satisfactory.

Early Secondary Suture of War Wounds

At one of the recent meetings of the Société de chirurgie de Paris, Drs. Barthélémy, Morlot and Jeanneney demonstrated the good results obtained by secondary suture in forty cases of war wounds. The following technic was used: The disappearance of all inflammatory symptoms and the elimination of all dead tissue are waited for. The ulcerated surface is circumscribed by an incision passing through the healthy skin at least 5 cm. from the edge of the wound. The incision extends down to the aponeurotic fascia so that the whole ulcerated area can be removed as if it were a tumor. The field of operation is disinfected with ether; gloves and instruments are changed. If too much traction would be made on the wound edges by bringing them into contact, the skin is undermined with a bistoury or scissors as far as is necessary to loosen it up to secure perfect apposition of the wound edges without traction. If the wound is rather large, the deeper layers should be sutured with catgut. This suture assures hemostasis, which must always be complete; this also facilitates the skin suturing. The skin wound is closed with horse hair, perfect approximation of the wound edges, particularly at the angles of the wound, being obtained. One should always close the wound on the limbs in the long axis, having recourse, if necessary, to a releasing incision (*de débridement*). For the succeeding days, the temperature should be watched. The dressing is renewed in about forty-eight hours. If there is any stitch hole suppuration, the wound edges at this point, are separated, and a little ether is injected daily.

RESULTS

The results obtained have been as follows: In twenty-six cases, primary union or speedy union occurred in less than fifteen days; in eleven cases, rapid union occurred, in spite of some suppuration at one stitch hole and a little exudation at one portion of the wound, healing requiring only exceptionally more than a month; in two cases the results were mediocre, owing to faulty technic, the suture having been made perpendicularly to the axis of the limb; finally, in one case, union, not having been preceded by excision of the infected tissue, did not take place. A second operation performed some days later, in accordance with the usual technic, resulted in a complete success. In a general way, after such suture, a complete cure was obtained in from fifteen days to a month, only exceptionally requiring more time. The operation should be performed, ordinarily, about fifteen days after the patient enters the hospital; the average stay in the hospital, counting from the date of the wound, was about forty days. All the cicatrices are soft, pliable and nonadherent, and the wounded, that is, those having wounds which were amenable to this treatment, quickly returned to their corps. The operation has always reduced the period of invalidism considerably, and often the evacuation of the wounded into the interior has been made unnecessary. The technic is simple and free from danger. In the majority of cases the operation was performed under local or regional anesthesia, chloroform being resorted to only when the injury was very extensive so that local anesthesia was contraindicated.

American Red Cross in France

During the five months since the first delegates arrived in Paris, the American Red Cross has been very active. Among its first activities was the establishment of eleven canteens at the front, which have served, to date, more than 500,000 hot drinks to the tired French soldiers who are on their way to the trenches or are returning. Three canteens have been established along the line of communication. An infirmary was opened at Toul where, since July 27, 400 children less than 8 years of age have been sheltered from the danger of asphyxiating bombs; finally, an American hospital for repatriated children was opened at Evian with a dispensary in which 250 children are examined daily; and three large consignments of merchandise were sent to the dépôts of the departments of the Somme, the Oise and the Aisne. In addition to these emergency measures, the American Red Cross has also inaugurated a social service department which will do especially tuberculosis work (in cooperation with the Rockefeller commission) and in the prevention of infant mortality.

CUBA LETTER

Havana, Feb. 12, 1918.

Appointment of New Professors

Dr. J. E. Ferran has been appointed professor of clinical surgery at the University of Havana in place of Dr. Raimundo Menocal, deceased. Dr. Rafael Menocal has succeeded Dr. Ferran as assistant professor of clinical surgery.

New Medical Journals

El Eco Cientifico, a monthly journal devoted to general practice, is being published in Ciego de Avila, Camagüey. This is the first Cuban medical journal to be published outside of Havana.

The editors of the *Revista de Pediatria* have resumed the publication of their journal in Havana, under the leadership of Drs. C. and A. Inclán and Professor A. Aballi. The paper will appear the first of every month and will deal with pediatrics exclusively.

Red Cross Work

The Cuban Red Cross Committee is raising a fund to build and support a hospital in France. An especial opera performance was given a few days ago, and the proceeds of it were devoted to the Red Cross fund. The most prominent people, banking houses, and merchants of Cuba also contributed to this fund, and all the employees of the government, provinces and cities gave one day's salary. Mrs. Menocal, the wife of the president of the republic and the leader of the Cuban Red Cross, reports that she expects to have a million dollars soon.

Reorganizing the Army Medical Corps

Colonel Hada of the U. S. Army is said to be in Cuba on a special mission to reorganize the medical corps of the Cuban army. The medical strength of troops is 15,000, and the Medical Corps is composed of two lieutenant-colonels, three commanders, fourteen captains and twenty-one lieutenants. Six new military hospitals will be built in each of the six provinces of Cuba and the number of medical officers increased.

Isle of Pines Spring Water Declared Unfit for Public Use

The Board of Health Laboratory found in specimens of "La Cotorra" mineral water of Isle of Pines, 8,000,000 colonies of colon bacilli per cubic centimeter. Orders were issued at once to confiscate all bottles, and a special announcement was made warning the public not to drink the so-called table water "La Cotorra."

Shortage of Foodstuffs

The Cuban people are suffering from the absolute lack of flour and therefore of bread. Lard is very scarce, and costs a dollar a pound; butter is from 70 cents to a dollar a pound. The commission for food regulation is working actively in order to import flour and other articles of food and get control of them.

Fourth National Medical Congress

The fourth meeting of the National Congress of Physicians, Dentists, Pharmacists and Veterinarians of Cuba was held last December at the Academy of Science. More than 1,200 professional men gathered, and very interesting articles were discussed. Dr. M. Dominguez of the Board of Health Laboratory for Medical Research read a paper on a new vaccine treatment of tuberculosis. Several reports were read on tropical subjects, especially on leprosy, uncinariasis and malaria, by Drs. Montoro, Lebredo and Alfonso.

Dr. J. A. Fresno, professor of anatomy of the University of Havana and a prominent surgeon, was elected chairman of the fifth meeting of the medical congress, to be held in 1920.

Award of Prize

The biannual prize of the Society of Clinical Studies was awarded to Dr. E. de Aragon, Jr., for his studies on cancer of the uterus. The prize consists of $200 and a diploma.

Vaccination Against Smallpox

One case of smallpox was diagnosed on board a ship from New Orleans at Havana harbor; the patient was removed to Las Animas Hospital for contagious diseases. Shortly afterward another case of smallpox was discovered in the city, and the patient removed to the same hospital. Compulsory vaccination has been ordered, and so far no more cases of the disease have been registered.

Marriages

Surg. Lawrence Floyd Drumm, U. S. Navy, on duty in the Public Health Service in Hayti, to Miss Harriet May Randall of Oneida, N. Y., at Port-au-Prince, Hayti, January 17.

Lieut. Thomas Joseph Courtney, Assistant Surgeon, U. S. Navy, Brookline, Mass., to Miss Teresa Bernardine Killelea of Worcester, Mass., February 12.

Lieut. James Patrick Fitzgerald, M.D., M. R. C., U. S. Army, New York City, to Miss Katherine Dean of Highland Park, Ill., February 9.

Lieut. Roland Albert Davison, M.D., M. R. C., U. S. Army, to Miss Florence James of Brooklyn, at Malone, N. Y., December 30.

Asst. Surg. Walter James Spencer, U. S. Navy, Brooklyn, to Miss Sophia Burgauer of Chicago, in New York City, December 24.

Lieut. Harry Anthony Durkin, M.D., M. R. C., U. S. Army, to Miss Rose M. Fleming, both of Peoria, Ill., February 1.

Lieut. Charles Mallon O'Connor, Jr., M. C., U. S. Army, to Miss Marie Ballentyne of Honolulu, H. I., December 21.

Howard Clay Sevier, M.D., Tallulah, La., to Miss Clyde Kell Scott of Vicksburg, Miss., January 12.

George Pitkin Cooley, Jr., M.D., Detroit, to Miss Bessie B. Leipz of Evanston, Ill., January 12.

Hunter Robb, M.D., Winchester, Mass., to Mrs. Edwin Ginn of Boston, February 2.

Floyd Albert Smith, M.D., to Miss Edna H. McCann, both of Canton, Ill., January 1.

Deaths

Samuel Augustine Brown, M.D., Sioux Falls, S. D.; Jefferson Medical College, 1871; aged 69; a Fellow of the American Medical Association; first president of the Sioux Valley Medical Association; first president of the South Dakota State Medical Association, and of the Minnehaha County Medical Society, and Seventh District Medical Society; assistant surgeon in the United States Navy from 1871 to 1884; died at his home, February 5, from heart disease. The Seventh District Medical Society at its regular monthly session adopted resolutions of affection, appreciation and regret.

Capt. Milton Jay Lichty, M.D., M. R. C., U. S. Army, Cleveland; University of Pennsylvania, Philadelphia, 1895; aged 48; a Fellow of the American Medical Association; a member of the Cleveland Academy of Medicine; assistant clinical professor of medicine in Western Reserve University, Cleveland; chairman of the board of tuberculosis examiners at Camp Zachary Taylor, Louisville, Ky.; died in the base hospital at Camp Taylor, February 14, from septic meningitis following an otitis media and mastoid operation.

Died in the Service

Lieut. Francis Findley Hanbidge, M.D., M. R. C., U. S. Army

(See The Journal, Feb. 16, p. 477)

Robert Folger Stratton, M.D., St. Joseph, Mich.; Harvard Medical School, 1857; aged 86; for more than fifty years a resident of St. Joseph, for many years school moderator, and a member of the board of education; at one time library trustee, a member of the city council, and of the board of health; surgeon of the Eleventh Illinois Volunteer Cavalry during the Civil War; died at his home, February 7, from myocarditis.

William Chilton Day, M.D., Danville, Va.; Medical College of Virginia, Richmond, 1864; aged 76; a member of the Medical Society of Virginia; surgeon in the Confederate service throughout the Civil War; for thirty-five years local surgeon of the Southern Railway, and president of the Society of Southern Railway Surgeons in 1915; died in the Danville General Hospital, January 25, from pneumonia.

Capt. Clarence Davis Bradley, M.D., M. R. C., U. S. Army, Philadelphia; University of Pennsylvania, Philadelphia, 1907; aged 38; a Fellow of the American Medical Association; instructor in laryngology in Temple University, and a member of the staff of the Samaritan Hospital; regimental surgeon of the Sixty-Ninth Infantry, U. S. Army; died at Camp Greene, Charlotte, N. C., February 1.

Milton H. Auter, M.D., Galesburg, Ill.; Howard University, Washington, D. C., 1905; aged 38; a colored practitioner; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at the home of his father at Harrisburg, Pa., January 17, from the effects of a gunshot wound of the heart, self-inflicted, it is believed, with suicidal intent.

Ernest Frederick Luhrsen, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1889; aged 42; a Fellow of the American Medical Association; pathologist and assistant surgeon to the Lutheran Hospital, Brooklyn; formerly lecturer in toxicology in the Brooklyn College of Pharmacy; a member of the staff of the Brooklyn Hospital; died at his home, February 3, from pneumonia.

Wilfrid Warpool Brown, M.D., Woonsocket, R. I.; Baltimore Medical College, 1891; aged 52; a Fellow of the American Medical Association, and president of the Woonsocket District Medical Society; superintendent of the Blackstone, Mass., public schools, and a member of the school board for three years; a member of the Woonsocket school committee; died at his home, January 28.

William T. Pate, M.D., Gibson, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 57; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of North Carolina; formerly state bacteriologist and president of the Fifth District Medical Society; died at his home, Dec. 3, 1917, from cerebral hemorrhage.

Henry A. Smith, M.D., Waterville, Wash.; Lincoln Memorial University, Knoxville, Tenn., 1892; aged 49; formerly a member of the Washington State Medical Association; died in a hospital in Waterville, February 2, from the effects of poison self-administered and an incised wound of the throat, self-inflicted, it is believed, with suicidal intent.

Henry B. Stehman, M.D., Pasadena, Calif.; Jefferson Medical College, 1877; aged 65; a Fellow of the American Medical Association, and Chicago Gynecological Society; for many years superintendent of the Presbyterian Hospital, Chicago; who was obliged to go to California on account of his health in 1900, died at his home, February 17.

Murray Hume Paterson, M.D., R. A. M. C., Chatham, Ont.; University of Toronto, 1914; aged 26; for two years on duty as medical officer of the First Rifle Brigade, and awarded the Military Cross for rescuing wounded under fire; was struck by an express train and instantly killed near Orpington, Kent, England, September 14.

Robert Emmett Griffin, M.D., Lincoln, Neb.; Bellevue Hospital Medical College, 1880; aged 58; major and chief surgeon of United States Volunteers during the war with Spain, and surgeon-general of Nebraska National Guard; surgeon-in-chief to St. Elizabeth's Hospital, Lincoln; died in a hospital in that city, February 15.

Major Henri Masson Duhamel, M.D., Montreal; Laval University, Montreal and Quebec, 1890; aged 51; one of the first to take service with Laval General Hospital No. 6, C. E. F., serving with the hospital in England and France since 1916; who was invalided home in December last, died at his home, February 3.

Harry Bower Tice, M.D., Twodot, Mont.; University and Bellevue Hospital Medical College, New York City, 1899; aged 42; secretary of the Meagher County, Mont., Board of Health from 1904 to 1910; surgeon to the Montana Railroad; died at the Daughters of Jesus Hospital, Lewistown, January 31, from pneumonia.

Lieut. Ellsworth Josiah Carroll, M.D., M. R. C., U. S. Army, Eureka, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1889; aged 53; who was on active service on duty at Camp McArthur, Waco, Texas, and attached to the aero squadron; died at Camp McArthur, February 13, from spinal meningitis.

George Burnham, M.D., Peterboro, Ont.; Bellevue Hospital Medical College, 1866; University of Victoria College, Coburg, Ont., 1867; aged 73; for twenty-five years a member of the board of education of Peterboro, and for two years its chairman; died at his home, Nov. 27, 1917, from cerebral hemorrhage.

William Stewart Keever, M.D., Parkersburg, W. Va.; Medical College of Ohio, Cincinnati, 1884; aged 56; formerly a member of the West Virginia State Medical Association; a charter member of the Ohio Valley Medical Society; died in St. Joseph's Hospital, Parkersburg, February 3.

William Ilderton, M.D., Florence, S. C.; Medical College of the State of South Carolina, 1889; aged 54; formerly a Fellow of the American Medical Association; was shot and killed in a pistol duel in the county court house, February 8.

Alexander Cameron Brown, M.D., Lexington, Ky.; Hospital, College of Medicine, Louisville, Ky., 1904; aged 38:

formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association; died at his home, February 6, from pneumonia.

Charles Dexter Sawin, M.D., Somerville, Mass.; Harvard Medical School, 1883; aged 60; a Fellow of the American Medical Association; from 1884 to 1890 physician to the state prison, Charlestown, Mass.; died suddenly from heart disease in Boston, February 8.

Thomas L. Irwin, M.D., Jacksonville, Fla.; Cincinnati College of Medicine and Surgery, 1865; aged 81; a pioneer pharmacist of Jacksonville, and a member of the city council; died at the home of his son in Jacksonville, January 25, from pneumonia.

P. Joseph Faughnan, M.D., Locust Gap, Pa.; College of Physicians and Surgeons, Baltimore, 1892; aged 53; a member of the Medical Society of the State of Pennsylvania; died at his home, January 28, from heart disease.

John Martin Craig, M.D., Philadelphia; University of Michigan, Ann Arbor, 1898; aged 55; a Fellow of the American Medical Association; died at his home in Germantown, Philadelphia, December 26, from pneumonia.

Olenthus D. Stroud, Ore Hill, N. C. (license, North Carolina, 1885); aged 67; a member of the Medical Society of the State of North Carolina; also a druggist; died in a hospital in Greensboro, N. C., January 19.

Edmund A. Malsch, M.D., Victoria, Texas; Memphis (Tenn.) Hospital Medical College, 1893; aged 49; a Fellow of the American Medical Association; died at his home, January 28, from pneumonia.

Albert Summerfield Payne, M.D., Manistee, Mich.; University of Michigan, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; died at his home, January 31, from heart disease.

Thomas A. Lilly, M.D., Chicago; Kentucky School of Medicine, Louisville, 1864; aged 80; physician to Sacred Heart Convent and St. Joseph's Home, Chicago; died at his home, February 6.

William Stanley Gorsuch, M.D., Baltimore; University of Maryland, Baltimore, 1888; aged 55; for many years a practitioner of Churchville, Md.; died at his home, January 23.

Patrick J. Cassidy, M.D., Norwich, Conn.; Johns Hopkins University, Baltimore, 1898; aged 43; a Fellow of the American Medical Association; died at his home, January 28.

Lieut. Arnold Herbert Van Duyn, M.D., M. R. C., U. S. Army, Hill City, Kan.; College of Physicians and Surgeons, Chicago, 1893; aged 46; died at his home, January 28, from heart disease.

Charles T. Moorman, M.D., Packwood, Iowa; Eclectic Medical Institute, Cincinnati, 1876; aged 81; a practitioner for more than forty-four years; died at his home, February 4.

Walter R. Bartlett, M.D., Greenwich, N. Y., Yale University, New Haven, Conn., 1871; aged 79; a veteran of the Civil War; died at his home, January 13, from pneumonia.

Peter Anderson, M.D., New York City; University of Toronto, Ont., 1903; aged 39; died in the Kingston Avenue Hospital, Brooklyn, January 30, from tuberculosis.

Samuel Brubaker Hartman, M.D., Columbus, Ohio; Jefferson Medical College, 1857; aged 87; died in the Hotel Hartman, Columbus, January 30, from senile debility.

Judson Teeter, M.D., New Salem, Ohio; Medical College of Ohio, Cincinnati, 1902; aged 40; formerly of Pleasant Hill, Ohio; died at his home, January 15, from asthma.

Edward Pollock Anshutz, M.D., Philadelphia; Hering Medical College (Hon.), 1909; aged 71; editor of the *Homeopathic Recorder;* died at his home, January 31.

James Fielding, M.D., Norwich, England; Victoria College, Coburg, Ont., 1868; aged 73; formerly of Bowmanville, Ont.; died at his home, recently.

William S. Wilson, M.D., Maysville, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1891; aged 55; died at his home, January 27, from acute gastritis.

B. H. Yount, M.D., Wilbur, Wash.; Baltimore University, 1889; aged 60; a pioneer practitioner of the Big Bend Region; died, about January 21.

William Clark Leet, M.D., Washington, Pa.; College of Physicians and Surgeons, Baltimore, 1881; aged 80; died at his home, January 30.

Mary Eva Peck, M.D., Goshen, Ind.; Hahnemann Medical College, Chicago, 1889; aged 65; died at her home, January 27, from neuritis.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

BELL ANS (PAPAYANS, BELL)

As the New York Tribune's "Ad-Visor" Sees It

"W[illegible] Sit by an open window, if you want [illegible] drops of Sneeze o before you go into the draught and after you come out of it, and you'll never catch [illegible]

"Don't be afraid of contagion. Kiss your Uncle Ebenezer, even if he's dying of tuberculosis! Just fortify yourself with a special [illegible] before you go to his bedside, and another when you come away, and you'll be taking no risk.

"Are you going to sit there and let the other folks eat up all the good things just because you are afraid to pitch in, when 2 or 3 Bell-Ans taken before and after the meal would enable you to enjoy your share of all that's coming without a bit of discomfort or distress? Bell Ans has restored the pleasures of the table to thousands who say: 'I can now eat anything and plenty of it, too.'"

"The first two blurbs are The Ad-Visor's. The third is a bona fide advertisement of Bell-Ans, aimed to catch the holiday trade. They are all patterned after the same style and the first two are no more lacking in logic than the last. Overeat deliberately court indigestion—invite gout—don't be a gourmet, be a gourmand—be an anti-Hoover and eat a lot of food, whether you need it or not; then take Bell-Ans. If it doesn't 'absolutely remove indigestion,' your druggist will give you back your money! Could anything be fairer than that?

"Such copy as this is not limited in its evil effects to the misguided individual who eats lobster and ice cream at midnight and trusts to Bell-Ans to atone for his indiscretion. The most serious effect of such reckless advice is the example which the advertising sets to other advertisers."

The comments just quoted are from the Ad-Visor department of the New York *Tribune* of Feb. 7, 1918. They are respectfully referred to the *New York Medical Journal,* the *International Journal of Surgery* and the *Woman's Medical Journal*—three presumably scientific publications that through their advertising pages urge physicians to prescribe Bell-Ans.

ANTIPHLOGISTINE

To the Editor:—Last September, my chief, Dr. J. S. Millard, received a letter from the Denver Chemical Mfg. Co., manufacturers of "Antiphlogistine." This letter purported to quote many large commercial concerns as testifying to the value of Antiphlogistine. Recently, I doubted the veracity of these claims and wrote to some of those quoted. I quote from the original letter of the Antiphlogistine company:

> "The surgeon to the electric light and electric railroad company in New Orleans, says that Antiphlogistine is the finest thing he has ever used in burns, especially flash and brush burns.
>
> "The physician to the New York Edison Co. makes a similar statement. He says that the application gives speedy relief and the burns heal quickly without scars."

I wrote to Dr. John Woodman, the physician to the New York Edison Co., who replied in part as follows:

> "The Denver Chemical Manufacturing Company have no authority to quote me. . . . I gave Antiphlogistine a thorough trial, and found it had a very limited use, and I cannot recommend it for burns. . . ."

Again, the Antiphlogistine letter said:

> "It may be of interest to you to know that at the emergency hospital of the Ford Automobile Co. in Detroit, Antiphlogistine is carried in stock and is used extensively by the three physicians in burns, bruises, infected wounds, sprains and other traumatic conditions which are constantly arising in such a plant. . . ."

I wrote to Dr. Mead who replied as follows:

> "In answer to your letter [illegible] uary 25th, will state that no Antiphlogistine has been purch[illegible]sed in this [illegible] for years past,

and I cannot imagine why the representative of the Denver Chemical Company should make such a statement as attributed to him. . . ."

He adds that "Antiphlogistine has never been used" in his department "on an open wound, abrasion or burn." Is there not some way that such exploitation of our large companies can be prevented?

A. G. Gould, M.D., Akron, Ohio.
Plant Physician, the Goodyear Tire & Rubber Co.

Correspondence

CARDIOVASCULAR EXAMINATIONS

To the Editor: The interesting and suggestive article by Dr. Babcock in The Journal, February 9, raises questions that demanded critical consideration at the present time.

All competent clinicians, military surgeons and life insurance medical directors will, I am sure, heartily concur in Dr. Babcock's postulate that even a persistent heart murmur unaccompanied by any secondary symptoms or signs is not sufficient ground for condemning a man to an early death. Those who have had an opportunity to observe and statistically follow large masses of lives presenting such impairment will go even further and agree that a fair number of individuals exhibiting unquestionably grave organic impairment of heart and kidney will live for many years and that some will arrive at a ripe old age. Such individual instances, however, only expose the folly of regarding organic physical impairment as necessarily a progressive disease entity or "malady" that inevitably moves on in its mysterious course rapidly to shorten life.

A damaged or imperfect heart is not a condition of *disease* but of *impairment;* and with proper care and attention to the source of impairment (infectious, toxic, etc.) or with unusual luck and latent resisting power the damaged organ may be made to "carry on" more or less indefinitely. This does not, however, convict the life insurance officers or military surgeons of inconsistency in declining, or rating up, men with heart murmurs that have been adjudged to be either organic or of doubtful significance.

The life insurance officers and others who have to consider the ultimate quality of an accumulated group of lives must distinctly avoid being governed by individual instances of the types cited by Dr. Babcock.

No weight of clinical judgment based on the consideration of comparatively small numbers of lives which have not been rigorously followed over long years of exposure to life strain and compared with normal lives can be accepted as against the cold-blooded testimony of the mortality records. It is a curious and significant fact that the life insurance mortality on cases reported to have functional heart signs only, but limited to rated up policies because of the doubtful diagnosis, was for a time as heavy as that on well defined valvular murmurs. With the improvement in diagnosis, the so-called functional heart murmurs or murmurs that cannot be classified under the characteristic valvular murmurs show in certain well tested experiences about 50 per cent. extra mortality.

Characteristic types of so-called valvular murmur give death rates ranging from 50 per cent. extra mortality to over 100 per cent.; and it is to be remembered that these figures relate to cases that are free from subjective symptoms—supposedly favorable types! The mortality in cases showing decompensation and obvious signs of even slight circulatory failure would be much higher. Such cases are not usually accepted even for substandard policies. One large company that has accepted a considerable number of substandard lives on rated up premiums has had approximately a double mortality in these heart cases, in spite of the fact that none is accepted over the age of 40, no cases of aortic murmur are accepted, and all cases must be apparently in good functional condition.

In the medico-actuarial investigation of the experience of forty-three life insurance companies, a persistently irregular pulse showed an extra mortality of 50 per cent. in lives accepted on standard policies. A pulse rate of from 90 to 100 showed an extra mortality of 72 per cent. in lives accepted on standard policies.

These are stubborn facts, and they amply justify the conservatism of the life insurance companies. They may well be considered by the military authorities at the present time, when clinical judgment is determining a very liberal attitude, both here and in England, toward circulatory impairment. That murmurs may be caused by conditions other than valvular impairment only emphasizes the need for caution in interpreting their significance too optimistically. If the wealth of evidence locked up in British life offices were available, perhaps Sir James Mackenzie would not be so ready to send heart patients back to active service (except as an extreme military necessity).

The writings of this brilliant worker in heart pathology, to whom we owe so much, are strongly tinctured with this optimistic note in prognosis. He says:

> The possibility that a healthy heart may present a murmur is so opposed to the views of a great many of the profession, teachers and practitioners, that much harm is done to people who have to be examined for life insurance or for entrance into the services. I base my views on the fact that I have watched numbers of healthy young people, who exhibited this murmur, grow up into manhood and womanhood, and lead healthy and vigorous lives, and never show the slightest sign of heart failure.

When fixing the quality and vitality of a class or group, "numbers" too loosely considered will not do; we must accept the evidence of the complete records, the ascertained mortality on the group as against the survival of a fortunate few.

The unquestionably high mortality in this class justifies the penalizing of these lives, while the survival of large numbers also justifies a hopeful outlook if they are properly safeguarded, which is not the case if they are slapped on the back and told to go about their business and pay no heed to their limitations.

This is a time when action should be based on evidence whenever it is obtainable. It would be, indeed, a calamity if the present trend toward minimizing the importance of these clinical heart findings should lead to a faulty attitude on the part of the profession toward circulatory impairment. It is well to know that organic impairment need not be rapidly progressive. It is equally important to know that, on the average, it definitely shortens life even in apparently favorable types, and emphasizes the need for hygienic living among those showing persistent heart irregularities or murmurs.

We may well take heed lest there be turned back into civil life, after the war is over, an unduly large number of damaged men. Men who now show an extra mortality of from 50 to 100 per cent. under ordinary life strain are not likely to be improved under war strain, even though at the outset the camp training is temporarily beneficial.

It is well known that the effect of emotional strain may be more harmful than physical strain to the circulation.

Some with heart signs will undoubtedly be permanently benefited by the war, but it is the mass we have to consider and not the exceptional individual. It is lack of this mass or group consideration that is liable to lead to serious error at the present time.

Eugene L. Fisk, M.D., New York.

FEDERAL TRADE COMMISSION REQUESTS USE OF OFFICIAL NAMES

To the Editor:—Nothing is further from the intention of this commission than to attempt to influence the editorial or advertising policy of any publication, but it is believed that an effort should be made to secure the general use of the new official names in connection with the drugs, licenses to manufacture which have been granted by this commission. To this end we suggest that The Journal of the American Medical Association (if such course meets its approval) use the official names "Arsphenamine," "Procaine," "Barbital," etc., in connection with all advertisements of the products and all articles in which they are referred to.

L. L. Bracken, Washington, D. C.
Secretary, Federal Trade Commission.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SYPHILODOL

To the Council on Pharmacy and Chemistry:—If you have not already done so, will you kindly examine and report on "Syphilodol" advertised in the enclosed pamphlet? B. C. Pedersen, M.D., New York.

To the Editor:—Have you any information concerning the enclosed half page advertisement [of Syphilodol] from the *Urologic and Cutaneous Review?* Edward S. Newell, M.D., Pelham, N. Y.

To the Editor:—I am enclosing an advertisement for a substance called "Syphilodol" manufactured in New York. I am not familiar with this article nor have I seen it advertised in the higher class journals. Can you tell me whether The Journal's department of New and Nonofficial Remedies has passed on this article or whether you have any data concerning it? It looks a trifle fishy to me.

Louis Leroy, M.D., Memphis, Tenn.

To the Editor:—I am sending the enclosed correspondence [Syphilodol letters] to you as it looks as if it might have some interesting features from the point of view of your nostrum department.

Isadore Dyer, New Orleans, La.

Answer.—These are but some of the inquiries that have been received on this subject and it is encouraging to note the scientifically critical attitude of physicians toward new therapeutic agents. According to the French Medicinal Company, Inc., which markets this product, "Syphilodol is a synthetic chemical product of silver, arsenic and antimony. . . ." Nowhere in the advertising matter is there any more definite statement as to the composition of this new "synthetic" than that just quoted. The product is now under examination in the Association's laboratory and when this is completed a more detailed report will doubtless be forthcoming. At present the work has progressed sufficiently to show that Syphilodol tablets contain considerable quantities of mercury! Although the advertising leaflets claim that the preparation is "the formula of the late Dr. Alfred Fournier of Paris" and had been exhaustively tested by Metchnikoff who is alleged to have found it superior to Salvarsan and Neosalvarsan, yet, strange to say, a careful search of French medical journals fails to show any reports on Syphilodol. *Verb. sap.*

TROUSSEAU'S WINE—PYXOL

To the Editor: 1. Will you please give me the old formula of Trousseau's Wine? How is it prepared; are leaves and berries or powder, i. e., drugs, used? 2. What is pyxol, which is used in the preparation of McDonald's solution?

A. P. Utterback, M.D., Ozona, Texas.

Answer.—1. The obsolete and irrational combination of drugs acting on the heart and kidneys known as Trousseau's wine (Vin de digitale composé) is made by macerating digitalis, 10 gm., squill, 15 gm., and juniper berries, 150 gm., with white wine, 1,800 gm., and alcohol (90 per cent.), 200 gm. After maceration the liquid is expressed, 100 gm. of potassium acetate dissolved in it, and the liquid filtered.

2. Pyxol is a preparation somewhat similar to the compound solution of cresol of the U. S. Pharmacopeia. It is a proprietary preparation of secret composition. In 1915 Pyxol was declared misbranded under the Insecticide Act (U. S. Dept. of Agric., Service and Regulatory Announcements, No. 10).

LUMINAL

To the Editor:—I wish to know something of Luminal. I have a patient who had it prescribed for him by a Chicago physician. I can find numerous references to it, but can find nothing in regard to its composition or actions. N. L. Goodrich, M.D., South Haven, *Mich.*

Answer.—Luminal is described in New and Nonofficial Remedies, 1917, p. 87-88. Chemically it is phenyl-ethyl-barbituric acid, and differs from veronal (diethylbarbituric acid) in that one ethyl group has been replaced by a phenyl group. Luminal is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, March 5. Sec., Dr. L. P. Dawes.

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H.): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

FINAL REPORT ON EDUCATION PRELIMINARY TO THE STUDY OF MEDICINE

The highest desirable legal standard of preliminary education advocated by the American Medical Association as the minimum for admission to the study of medicine is two years of college work based on a four-year high school education. In June, 1916, this standard had been adopted by the majority of medical schools in the United States, and in that month was made a requisite for the Class A rating of the Council on Medical Education. Prior to that time, and since Jan. 1, 1914, the requirement was one year of college work, including required courses, of eight semester hours each, in physics, chemistry and biology. In February, 1917, a special committee was appointed by the Council on Medical Education to study the problem of premedical education, to suggest a subject content of the two-year premedical college course, and to develop a schedule of the subjects which would best prepare the student for his subsequent medical studies.

The committee is made up as follows:

Dr. Kendrick C. Babcock, Urbana, Ill., chairman, formerly specialist in higher education of the United States Bureau of Education; now dean of the College of Liberal Arts and Sciences of the University of Illinois and intimately identified with the work of the North Central Association of Colleges and Secondary Schools and the Association of American Universities in standardizing colleges of arts and sciences.

Prof. George Gailey Chambers, director of admissions, University of Pennsylvania, Philadelphia, representing the Association of American Universities.

Dr. W. F. R. Phillips, professor of anatomy of the Medical College of the State of South Carolina, Charleston, representing the Association of American Medical Colleges.

Dr. Theodore Hough, dean of the University of Virginia *Department* of Medicine, Charlottesville.

Dr. N. P. Colwell, secretary of the Council on Medical Education of the American Medical Association, Chicago.

Although of great importance to medical education, this is a matter which chiefly concerns academic colleges and universities; and for that reason, associations of such colleges are represented on the committee. Presidents and deans of such colleges have been generally and freely consulted in the study of the problem. The preliminary report of this special committee was published in The Journal of the American Medical Association, Aug. 18, 1917, page 546.

Following the discussions at the annual conferences of the Council on Medical Education and the Association of American Colleges in Chicago, Feb. 4 and 5, 1918, the committee met and prepared its final report, which, as finally adopted, is as follows:

I. High School Requirements

(*a*) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1, 1920) in a standard accredited high school or other institution *of standard* secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(*b*) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units*	Required
Group I, English—		
Literature and composition	3-4	3
Group II, Foreign Languages—		
Latin	1-4	2†
Greek	1-3	
French or German	1-4	
Other foreign languages	1-4	
Group III, Mathematics—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
Group IV, History—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
Group V, Science—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
Group VI, Miscellaneous—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fourteen units of high school work, (fifteen after Jan. 1, 1920) eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

II. Premedical College Course

(*c*) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays, in a college approved by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours* Required

	Semester Hours
Required Subjects:	
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d)	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
French or German (f)	6-12
Advanced botany or advanced zoology	3 -6
Psychology	3 -6
Advanced mathematics including algebra and trigonometry	3 -6
Additional courses in chemistry	3 -6
Other Suggested Electives:	
English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.	

* A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(*a*) *Chemistry.*—Eight semester hours required (twelve after Jan. 1, 1919) of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours (required after Jan. 1, 1919) may consist of additional work in general chemistry or of work in analytic or organic chemistry.

(*b*) *Physics.*—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics.

(*c*) *Biology.*—Eight semester hours required, of which four must consist of laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(*d*) *English Composition and Literature.*—The usual introductory college course of six semester hours, or its equivalent, is required.

(*e*) *Nonscience Subjects.*—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(*f*) *French or German.*—A reading knowledge of one of these languages is strongly urged. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages. In case a reading knowledge of one language is obtained by six semester hours of college work, another six semester hours may be well spent in taking the beginner's course in the other language; if this is followed up by a systematic reading of scientific prose, a reading knowledge of the second language may be readily acquired. When a student spends more than two years in college he may well spend twelve semester hours of his college work in the second language.

Advances Proposed at Columbia University School of Medicine

Columbia University School of Medicine is proposing the addition of a fifth year to the curriculum, to be spent by the student as an intern in a hospital. The reasons given for this are, first, the overcrowded condition of the curriculum and, second, the fact that a number of states now require the completion of an internship before candidates will be permitted to take the examination for license. The plans suggest that the degree of bachelor of medicine may be granted on completion of the present four-year course, and that the M.D. degree be withheld until after the internship has been completed. It is also proposed to have this intern year under the supervision of the medical faculty, so that the work of each intern will be carefully directed, in order that he may obtain as profitable an experience as possible. Other students who obtain the degree of bachelor of medicine, but who do not wish to enter on the practice of medicine, instead of taking the intern year may substitute advanced courses in research and laboratory subjects, and prepare themselves for the degree of master of science, or of doctor of philosophy.

Book Notices

Neurosyphilis: Modern Systematic Diagnosis and Treatment Presented in One Hundred and Thirty-Seven Case Histories. By E. E. Southard, M.D., Sc.D., Bullard Professor of Neuropathology, Harvard Medical School, and H. C. Solomon, M.D., Instructor in Neuropathology and in Psychiatry, Harvard Medical School. With an Introduction by James Jackson Putnam, M.D., Professor Emeritus of Diseases of the Nervous System, Harvard Medical School. By Vote of the Trustees of the Boston State Hospital, Monograph Number Two of the Psychopathic Hospital, Boston, Mass. Cloth. Price, $5. Pp. 496, with 25 illustrations. Boston: W. M. Leonard, 1917.

"It is a privilege to be allowed to write a word of introduction to a textbook which so richly fulfils its function as does this volume on the manifold disorders classified under neurosyphilis, a subject of which the importance for the welfare of society is found to loom the larger the more deeply its mysteries are probed. The case histories with which its pages are so amply stocked are carefully analyzed in accordance with a broadly chosen plan, and the generalizations that precede and follow them are obviously based on a wide and varied personal experience such as alone could render a familiarity with the literature of the subjects treated adequate to its best usefulness." This quotation, from Dr. Putnam's admirable introduction, will be fully endorsed by those who read this book, the excellence of which has been equaled only by Nonne's "Syphilis of the Nervous System," to which the authors gracefully acknowledge an obligation which, as they say, is shared by all workers in this field. The general practitioner will find the present work more useful on account of its crisp style, concise summaries and comments, and eminently practical choice of subjects and selection of cases. Every phase is brought absolutely up to date, including an interesting discussion of the problems of neurosyphilis in relation to the war. There are seven sections, namely: (1) the nature and forms of syphilis of the nervous system; (2) the systematic diagnosis of the forms of neurosyphilis; (3) puzzles and errors in the diagnosis of neurosyphilis; (4) neurosyphilis, medicolegal and social; (5) the treatment of neurosyphilis; (6) neurosyphilis and the war; (7) summary and key.

Recollections of a New York Surgeon. By Arpad G. Gerster, M.D. Cloth. Price, $3.50. Pp. 347, with illustrations. New York: Paul B. Hoeber, 1917.

Few men could write so interesting and informing a book as this, based on their own observations and experiences, because few men have had as many interesting observations and experiences. The author's early and formative years were spent in his native land, and the later in active professional life in the metropolis of the land of his adoption. In both countries, Dr. Gerster came in contact with men of note—in education, in art, in music and in medicine. And this book proves him to be not only an acute observer of men and things, but also endowed with a retentive memory. In the first part, he tells of life in Hungary—as a boy, as a student and as a young medical man. In describing his experiences he gives interesting glimpses of Hungarian life in a small town; of school life from the primary on to and including medical school days in Vienna. As the author was—and continues to be—a lover of outdoor life, and as he was often going on rambles for days or weeks at a time (sometimes, we gather, without the formal permission of his parents), we get an insight also of Hungarian rural life and of internal conditions, domestic, social and political, including charming descriptions of the country. One cannot but wish that the author had extended this part of the book. After graduating in medicine in Vienna, Dr. Gerster spent the required year as a medical officer in the Austro-Hungarian army, and his account of this year is interesting and enlightening. After this, he spent a short time in the city hospital of his home town, Casa, after which, in March, 1874, he came to this country.

The first part is autobiographical; the more recent part is in the form of comments on men and affairs in New York rather than the details of the life of the writer. Bringing with him letters of introduction from such men as Mundé, Mittleshoeffer, editor of the *Wiener medizinische Wochenschrift*, and Billroth, Dr Gerster was not long in getting into professional life and work The first three years he lived in Brooklyn, and then moved into New York City, where he has since resided Naturally, affairs connected with the German and Mount Sinai hospitals and the Polyclinic, institutions with which the author was connected, receive the most attention. Naturally, also, the men connected with these institutions are the ones who are personally mentioned, since they were the ones with whom he came in close personal and professional contact.

The author entered on his professional work in this country soon after the introduction of antiseptic surgery and, as he states, was one of the first in New York to put into practice the new principle of wound treatment. It was the beginning of a new era in surgery In his comments on his surgical work, and in his discussion of hospital management and medical schools, we are forcibly reminded of the wonderful changes that have taken place during the short span of a man's professional life To a certain extent this part may be regarded as a history of surgery and of the developments of hospital conditions in New York City during the last half century. To New York medical men and to those who have been in close touch with medical matters in that city during the last forty years, this part will be particularly interesting.

Dr. Gerster's "Recollections" is both delightfully readable and instructive; in his comments on men and affairs, especially in those in Part 3, which is devoted to diversions—hobbies, sports and reading—the author is revealed as a man who has a broad view of things and whose life has by no means been a narrow one. The original etchings, of which there are many, also prove that the author is an artist of no mean talent.

Service Rhymes. By Burt Franklin Jenness. Cloth. Price, $1. Pp. 103. El Paso: The Author, 1917.

The life of the naval surgeon is such as to bring him into contact with many phases of life, humorous, pathetic and virile. In "Service Rhymes," Dr. Jenness presents in excellent verse tales of camp and sea. Dr. Jenness shows an intimate understanding of the heart of the rookie either in the barracks or in the "fo'c's'le." Here is a sample:

> When a fellow's up against it,
>   And he hasn't got a cent,
> And his shabby clothes belie him
>   For a high toned gent;
> Then his friends will, ordinary,
>   Hand him out the stony stare;
> For the hard-luck down-and-outer
>   Isn't wanted, anywhere.
>
> But I've been thinkin' of the difference
>   In the way they treat a guy
> When he's all got up in khaki,
>   And he's ready for to die.
> When the bugles start to blowin'
>   Then life don't seem quite so raw;
> For a hobo is a hero,
>   When he's leavin' for the war.

Medical Diagnosis for the Student and Practitioner. By Charles Lyman Greene, M.D.; Attending Physician, St. Luke's Hospital, St. Paul. Cloth. Price, $10 net. Pp. 1302, with 562 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This fourth is a thoroughly revised edition, and is an expansive volume. The illustrations, many of which are in colors, cover the whole field of medical diagnosis. The work includes both physical diagnostic methods and laboratory procedures. Considerable space is given to practical advice on case taking, relative values of various observations, and other points culled by the author from his experience of many years as practicing physician, consultant and teacher. By the use of different styles of type, the author is enabled to lay varying degrees of emphasis on certain points, which is a distinct advantage to the student who must select from the vast mass of material those facts that he desires to memorize. An elaborate and efficient index completes what may be characterized a most practical book.

Medicolegal

Liability Not Diminished by Anything Physicians Did or Failed to Do

(Farnon vs. Silver King Coalition Mines Co. (Utah), 167 Pac. R. 675)

The Supreme Court of Utah holds that there was no error, in this personal injury case, in an instruction to the jury that the damages to be awarded the plaintiff should not be diminished because of anything the physicians did or failed do. The court says that whether this instruction was valid invalid depended, of course, on the facts and circumstances of the case and the law applicable to such facts, rather than on propositions of law applicable to a different state of facts. The plaintiff's left leg was fractured between the knee and hip at about the middle of the long bone. His foot was crushed and lacerated on the bottom, and his whole side, clear up into the shoulder, was bruised, contused, and had begun to become discolored, owing to extravasation of blood in the tissues, at the time the physician made his first examination. The plaintiff was taken to a hospital and treated for his injuries. After he had been there for several days, by some means unexplained, the cast, which had been used by the physicians in setting his limb and holding the broken bones in apposition so that the ends would knit together, became displaced and pushed down. The upper part of the leg became out of place. The bones, instead of being in apposition, lapped over. A new cast was put on the leg in that condition. No weight was attached or used on account of the patient's nervous condition and the expressed fear of the attending physician that he would be more likely to lose his leg. On the point that the limb could not be restored to apposition and weights put on under the circumstances, the testimony of the attending physician was corroborated by the assisting physician. The verdict of the jury was conclusive against the defendant's contention that any increased injury to the plaintiff was due to his own wilfulness or negligence. What did the physicians do to increase the injury? As far as the record disclosed, they did nothing that could have had that effect. They found the plaintiff in a certain condition, for which they were not in any sense responsible. They found him with the cast slipped down and the broken bones lapping one over the other. They did their best, under the circumstances, according to their testimony. They put on a new cast in the condition the limb was in without effecting an apposition of the broken bones, and without attaching weights to the limb. This, they concluded, would be impracticable and exceedingly dangerous. So far from doing anything to increase the injury, what they did was a distinct benefit, and left the limb in a better condition than they found it. The next question was, What did the physicians fail to do that increased the injury? This question has already been answered. The testimony tended to show that all was done that could be done without making matters worse. Unless, therefore, the law is such that a party who is responsible for an original injury may, nevertheless, be relieved from responsibility for an aggravation of that injury by accidental means, the court cannot conceive how the defendant in this case could escape liability for whatever injuries the plaintiff sustained. Finding, as the court does from the record before it, that the increased injury to the plaintiff was not due to his own negligence or wilfulness, or to any intervening efficient cause, it follows as a matter of law that it must be attributed to the original injury resulting from the negligence of the defendant.

Physicians Testifying as to Services of Nurse

(Higgs vs. Bigelow (S. D.), 164 N. W. R. 89)

The Supreme Court of South Dakota does not consider that a physician is prohibited from testifying as to the services of a nurse, and their value, by such a statute as the one of that state, which provides that a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient that was necessary to enable him to prescribe or act for the patient. Here the plaintiff, who was seeking to recover from the administrator of an estate for services rendered as a nurse, called as a witness, to prove her services as a nurse, and the value of them, a physician who attended the decedent during his illness, and for the same purpose called the physician who attended the wife of the decedent during her last illness. The defendant objected to this testimony on the ground that a physician is not competent to testify to any communication made to him, or to anything he saw or heard while attending his patient, such being privileged communications. But the court does not think the objection well taken. It deems it sufficient to observe that these physicians testified only to the general character and value of the services rendered by the plaintiff as a nurse, and were not examined and did not testify to any information acquired in attending their patients, necessary to enable them to prescribe or act for such patients.

Notes Given to Persons Practicing Medicine Without a Certificate

(Whitehead et al. vs. Coker (Ala.), 76, So. R. 484)

The Court of Appeals of Alabama, apparently after a reversal, on a rehearing affirms a judgment in favor of the defendant, who was sued on a promissory note given by him to parties called Dean & Dean, in consideration that they should treat his wife by "chiropractics." The defense interposed was that the services for which the note was given were rendered by the payees of the note in violation of the criminal statutes prohibiting the practice of medicine by any one who has not obtained a certificate of qualification from the board of medical examiners. To somewhat that effect was what was called the defendant's second plea. His third was similar, except the reporter states it alleged additionally that W. K. Dean, one of the payees of the note, resided in Etowah County, Ala., and was treating and offering to treat diseases of human beings contrary to law, and in violation of the criminal statutes of Alabama, in that at that time, and prior thereto, Dean had not filed in the office of the judge of probate of Etowah County a certificate of qualification issued by the state board of medical examiners of Alabama. The plaintiffs filed a replication to Plea 2 that the title to the note, which note was complete and regular on its face, was, before maturity, in due course, in good faith, and for value, acquired by them, and that at the time it was negotiated to them they had no knowledge or notice of any infirmity in the instrument, or defect in the title of the person negotiating it, and no knowledge or notice of the alleged acts set up as a defense to this action.

The statutory provisions found in Chapter 39 of the Code, embracing Sections 1626-1646, the court says, are regulations for the benefit of the public as well as for persons dealing with those who hold themselves out to the public as professionally qualified to treat diseases of human beings; and it is the public policy of the state to punish the violation of these statutes, and contracts made in violation of these statutes are void in the hands of all persons involved in the guilt of the transaction. In addition to interdiction of the act or transaction out of which the alleged cause of action arises, the statute (Section 1644) provides: "A physician whose certificate of qualification is not on record in the county in which he resides shall not be entitled to recover at law any compensation for services rendered in treating diseases of human beings." Sections 1644 and 7564 are *in pari materia* (on the same subject or of equal dignity), the latter section prescribing a penalty for practicing medicine without a license; and when the sections are construed together, in effect, any contract made in violation of these statutes is void *ab initio*, or from the beginning; and a note "resting on a void contract" cannot be protected against the defense set up in Plea 3, and the demurrer to the replication as to that plea was properly sustained. If the court erred in sustaining the demurrer to the replication as to Plea 2, it was error without injury, as the undisputed proof sustained the third plea, which was a complete answer to the complaint.

Society Proceedings

CHICAGO MEDICAL SOCIETY

Regular Meeting held Feb. 13, 1918

The President, Dr. Charles E. Humiston, in the Chair

MEDICAL SERVICE IN THE ARMY AND NAVY

Medical Service at Camp Grant

Major William L. Baum, Camp Grant, Ill.: Immunity from contagious and infectious diseases at the camp is due largely to the early recognition and character of the work done by the various medical officers. There are 279 medical officers in the camp, and eighty-two at the base hospital. Courses of instruction and lectures are given at the camp.

Up to the present time there have been 643 cases of measles, with two deaths from bronchopneumonia; German measles, 7 cases; diphtheria, 57; diphtheria carriers, 106; meningitis, 14; carriers of meningitis, 15; scarlet fever, 59; mumps, 295. Among all these cases there have been only four deaths. One hundred and four lobar pneumonia patients have been cared for by the medical department, with nine deaths. Since the inception of the camp there have been 27 deaths from all causes, and among them 2 from delirium tremens; 1 from mediastinal sarcoma; cerebral hemorrhage and cerebral syphilis, 1 each; dementia praecox, 1, and tuberculous peritonitis, 1.

In the surgical department, 550 major operations have been performed, with three deaths.

In the tuberculosis work following the examinations of 21,700 men, 204 tuberculous men were found, and of this number, 138 were dismissed from the Army.

Regarding my own department of genito-urinary and skin diseases, there are only twenty-six patients with venereal disease in the base hospital at present. Out of 27,000 men, only 20 per cent. have what is commonly known as "the social diseases" at the present time, a far smaller percentage than would be the case if the men were under home environment. It is easy to see how this can be so. The men at the camp are constantly under surveillance 85 per cent. of the time, while at home they are under the observation of their friends and relatives only 15 or 20 per cent. of the time.

Problems of the Medical Officer of the Navy

Medical Inspector H. E. Odell, U. S. Navy, Great Lakes, Ill.: Entering, as we all do from civil life, our first problem is to adjust ourselves to the changed environment, its peculiarities and necessities, so that the cog which we form in the machine shall move with the least friction and greatest efficiency.

Our duties are divided into periods at sea and ashore, the former being more nearly fixed, as three years is usually considered the time of such duty, while the shore period is more variable, but is usually of about two years' duration.

The medical officer must make himself familiar with the structural characteristics of his ship, the efficiency of its ventilating system, and all of its sanitary features. Once each week, and oftener if deemed necessary, he must make a thorough inspection of the entire ship and report in writing any sanitary defects found, submitting recommendations for their correction. Should contagious disease appear on board, his labors are greatly increased, as examinations of the personnel and ship must be of daily occurrence. He must be prepared to take care of any surgical work that may present itself, and accident surgery is extremely liable to be encountered during rough weather, for reasons that are obvious. He must instruct the various officers in first aid, who in turn impart this instruction to the men under their command, so that hurried dressings can be applied when practicable during naval engagements.

In the Navy, the primary object of the existence of the ship as a fighting vessel must always be borne in mind. During an engagement, the welfare of the wounded individual is primarily in the hands of his mates, and is decidedly secondary to fighting, success in the engagement being the only thing that counts.

When cruising in tropical waters, the medical officer must keep constantly informed of the diseases prevalent in ports visited, and the sanitary conditions of the towns and their vicinity, where members of the crew are likely to wander in their periods of shore leave. Expeditionary forces have more frequently been landed in tropical and oriental countries than elsewhere, and some tropical disease or diseases, such as yellow fever, malaria, dysentery, cholera or plague, are almost certain to exist in the vicinity. The medical officer lands with this force, and on him falls the responsibility of making such recommendations as to prevent the introduction of these diseases into the command.

The professional work in naval hospitals does not differ from that of civil institutions, but in addition the naval medical officer has many other duties. He is responsible for the care, cleanliness and discipline in the hospital, its maintenance and upkeep in every way, food for the personnel, diets for the sick, fuel, ambulance service, beds and bedding, drugs, all medical and surgical equipment and appliances, the keeping of the necessary records, the making of reports and returns, the training of attendants, keeping the families or friends of the sick informed of their condition, and the disposition of the dead.

Points in the Epidemiology of Meningitis

Surgeon O. J. Mink, U. S. Navy, Great Lakes, Ill.: The recruit is a distinct study in the prevention of infectious diseases, especially meningitis. From the time he enters the naval camp until he becomes a seasoned sailor, he probably undergoes one of the greatest changes that has ever taken place in his life. From a boy who lived in his own room and suited his ventilation, diet and clothing to his own tastes, he becomes a man who lives in constant association with other persons, and in all the matters of life his affairs are regulated to suit the majority of his fellows.

Without an appreciation of the status of the recruit, it is impossible to understand why we have meningitis in the Army and in the Navy.

If we look over the literature of meningitis for the past 100 years, we find the oft repeated statement that meningitis is a disease of young recruits; that meningitis occurs in men shortly after they are mobilized for service, and that it disappears among these men after they become accustomed to military and naval life. These facts are clearly illustrated in the recent epidemic at the Great Lakes. In considering this epidemic, it is necessary to distinguish between two types of diseases, the sporadic case, and the sharp, concentrated outburst of meningitis.

It is necessary to consider the plan of the camp at Great Lakes and to follow the course of the sailor from his entrance into detention until he leaves for one of the stations in the East. On his arrival at the camp, the recruit is placed in what is termed "incoming detention." We find that here he is tenderly cared for, with a distinctive appreciation that he is a civilian who is undergoing a great change in his habit of life. He receives an outfit of clothing, and is then turned over to the physician for vaccination, typhoid prophylaxis, and the various examinations. Those in charge of detention clearly realize that at this time the recruit is of little value to the government. He has made great changes in his life, and it is only reasonable to expect that great changes in his health will result. We find that during the detention period the recruit does not develop meningitis. Although watched for a long period, no cases of meningitis have ever developed in detention. That this is not due solely to the type of barracks is illustrated by the fact that men living in the same type of barracks and doing duty in which they are subject to exposure do suffer from the disease. The seaman guard, which is always quartered in this camp, has suffered severely from meningitis. We do not believe that this is due either to the presence or the absence of carriers, because we find that recruits on their arrival at the station show a large percentage of positive cultures for the meningococcus, in many cases 25 per cent. We do not believe that this [illegible] from m[illegible] during the twenty-[illegible] is due to a long incubation period from the disease, because we have held men in this camp for thirty days without developing meningitis, and to suppose that acute infection has an incubation period of over thirty days is practically to suppose that it has no incubation period at all. We found, therefore, that with tender care the recruit passes through the first three weeks of his service without meningitis. At the end of three weeks in detention, the supposed veteran sailor passes to what is termed Camp Dewey. Many of his previous restrictions are removed and many new duties are thrown on him. He is granted liberty; he is allowed to go to public gatherings, such as the Y. M. C. A.; he is made to drill, and he is made to take part in all the work connected with his regiment.

During the first part of January, this work was very severe, as it was a continual fight during the severe snowstorm to keep the roads and walks about the camps in a passable condition. If the burden thrown on the recruit at this time is out of proportion to the amount of seasoning which he received in "incoming detention," we find that he begins to suffer from minor ailments.

In the case of the Second Regiment, we found within a few days that there occurred a regimental outbreak of coughs and colds. Practically the entire regiment was crippled by bronchitis, coryza and influenza. Within four days from this time the first case of meningitis in this regiment appeared. A case a day appeared for about four days, then two cases a day, then three, and so on until at the height of the trouble, seven cases appeared in this regiment in twenty-four hours. In all, the regiment had from twenty-five to thirty cases during a period of about three weeks. With the subsidence of the epidemic of bronchitis and influenza, the meningitis began to subside. Many steps were taken to remedy the conditions in this regiment, but it is impossible to state honestly that any measures had the slightest effect on the disease, except the general care of a regiment that was below par physically, and the gradual hardening of this regiment to the conditions that they encountered.

In this regiment a careful study of carriers leads to the conclusion that measures to control the disease through the carrier method are absolutely worthless. A study of carriers in this connection yields many interesting observations concerning carriers, but throws little light on any method in this connection that can be utilized in controlling an epidemic of this nature.

It was possible during the epidemic to make cultures of practically every one of the twenty-four barracks connected with regiments. We found barracks in which meningitis developed that contained 8 or 9 per cent. of carriers. On the other hand, we found barracks in which no meningitis developed that contained 25 or 30 per cent. of carriers. In the instances in which a large percentage of carriers was found, carriers were removed; and in other instances the carriers were left in the barracks. New cases failed to develop in both instances. It was early found impracticable to remove all the carriers without producing overcrowding among the carriers, which resulted in additional cases. There seems little doubt that the oft repeated statement that carriers rarely develop the disease is erroneous, as the incident rate among carriers is higher than the rate for the general station. It is not the intention to maintain that carriers do not transmit the disease, but it is maintained that to combat this disease by the removal and segregation of all carriers is absolutely impracticable.

Other factors in controlling the disease are of so much greater importance and have been so neglected, owing to the enthusiasm of studying carriers, that it seems necessary to point out a few fallacies in the theory. Were it not for the fact that meningitis has always been held to be a serious disease, it would probably not inspire so great consideration as it does at present. Even in the most severe epidemics among recruits, a relatively small number of men develop the disease. In an army of 25,000, to fight a disease that affects only a small proportion and kills or disables a still smaller proportion, by segregating all carriers, is uneconomic and entirely against military efficiency. So large a proportion of persons in perfect health carry the meningococcus in their throats that the segregation of all carriers would practically mean the disbanding of the present training stations. If we segregate three out of every ten men as meningococcus carriers, we could with equal reason segregate three more of every ten as pneumococcus carriers, as we find that the distribution, spread and etiologic factors are practically the same in the two diseases.

As we progress in the war and in the experience of training the recruit, meningitis will disappear, and we shall probably attribute this to the intensive study of the carrier; and years from now, in the advent of another war, the recruit will again furnish the ever present problem of meningitis.

Pneumonia

Major Joseph L. Miller, Camp Dodge, Iowa: Up to last evening (February 12) 210 pneumonia patients were received in the base hospital at Camp Dodge. Of this number, in about 80.5 per cent. of the cases the disease appeared in the colored troops. Although they represented only one sixth of the strength of the camp, they represented 50 per cent. of the cases of pneumonia. When it comes to the mortality rate, the colored troops represent three fourths of the total mortality from pneumonia.

Orderlies, nurses and medical attendants are required to wear masks, caps and gowns in looking after pneumonia patients. Visitors are not allowed except in cases of extreme illness.

The sputum of pneumonia patients is collected on paper napkins, placed in a paper bag and burned.

At the camp, pneumonia patients are seen early, as compared with an institution like the Cook County Hospital, where they are seen late. Patients are seen within a few hours after the initial chill and pain. Pneumonia is suspected, on account of pain in the side, twenty-four or forty-eight hours before a physical examination will reveal the location of the pneumonia. These patients are roentgenographed at once, and it is found that the roentgen ray will show beginning pneumonia many hours before one is able to detect it by the physical signs. Many of the patients present a typical history of the onset of the disease, with chill and pain in the side, and within two or three days the temperature is normal, although the temperature runs high at first. If one depends on the physical findings in quite a large percentage of cases, he will find that acute bronchitis cases are in reality cases of pneumonia, as shown by the roentgen ray, which do not reach complete consolidation of the lung, and which run a very brief course, although a very intense course, as far as the temperature and evidences of intoxication go.

Another point of interest is the great frequency of empyema. This is not present alone in cases at Camp Dodge, but it has been present throughout all camps. At Camp Taylor, according to Major Hamburger, of 175 cases of pneumonia, there were forty-eight cases of empyema. The Surgeon-General has called attention to the frequency of empyema and has recommended exploratory puncture in order to detect its presence. Not only are empyemas very frequent, but they are difficult to detect.

We have made it a rule to get a leukocyte count every third day throughout the pneumonia and to have the patient, if he is not too ill, roentgenographed every third day with the hope of detecting the presence of empyema. There is usually a thin layer of pus, perhaps one-quarter or one-half inch thick, covering the involved lung, so that as far as the physical findings go they are not those of a collection of pus. There is distinct bronchial breathing, and there are distinct râles close to the ear, and one scarcely suspects that the patient could have a collection of fluid. In these cases if one introduces the needle through the chest wall and the small, narrow, intervening layer of pleural space directly into the solid lung and aspirates, he will fail to get anything. It is only with the greatest care, introducing the needle through the chest wall and drawing on the plunger of the syringe to see if there is pus present, that one is able to detect it. In two cases in which they felt sure they had pus, still they were unable to detect it with the roentgen ray or with the needle before death; yet at the necropsy these patients showed small empyema in the interlobular space containing not more than

2 or 3 ounces of pus, but sufficient to be an important factor in determining a fatal termination of the condition.

In a number of cases of empyema, necropsy has shown a purulent pericarditis. In the cases of empyema in which operation has been performed, there have been six deaths. Those patients that have died following operation and have come to necropsy have shown that there was only one pocket drained, or the patients had double empyema.

The roentgen ray as an aid in detecting the presence of localized collections of pus has not helped much.

Another point is the large number of cases of pneumonia simulating appendicitis. They have had six or eight of these, and at first the surgeons operated on these patient without consulting the medical staff; the first two or three patients continued to have a high temperature after operation, and were found to have pneumonia. Since then in practically all suspected cases of appendicitis a man from the medical service has been called in, and it has been difficult in many of them to determine whether one was dealing with an acute appendicitis or with pneumonia.

At present, there has not been a single death from pneumonia of Type I. Most of the cases have been of Type II or Type IV. The mortality in 200 cases of pneumonia up to date has been 10 per cent. In the first seventy-five cases the mortality was only 3 per cent. In the first 100 cases the mortality was 7 per cent., and in the last 100 the mortality has been a little higher. In the lobar pneumonias the mortality has been 10 per cent.

The method of treatment has been exceedingly simple. It consists in keeping the patient in bed, paying particular attention to the diet, and giving him what was thought to be needed. He is given morphin enough to control pain and to insure sleep. He is made as comfortable as possible by the administration of a hypodermic of morphin. The only other medication is digitalis, 3 minims, three times a day, and this being increased as the pulse increases in rapidity to 15 minims every three hours. The ward is well ventilated, but in case a patient becomes dyspneic, he is moved into the solarium or to a window that is slightly open to give him all the fresh air possible and to take away the expired air.

The colored troops are much more susceptible than the white troops and show less resistance to pneumonia.

Work Accomplished by the Advisory Commission of the Council of National Defense

MAJOR FRANKLIN H. MARTIN, Washington, D. C.: The Medical Section of the advisory commission of the Council of National Defense was organized to aid in the enormous task of expansion of the bureaus of the two Surgeon-Generals. A plan was adopted for a general medical board on which were placed representatives of the civilian medical profession, the Surgeon-Generals of the Army, the Navy and the Public Health Service, and representatives of the Red Cross; officers of the principal societies—surgical and medical—of the country. This consisted of the presidents, board of directors, or boards of regents, of the American Medical Association, the American College of Surgeons, the Clinical Congress, the American Surgical Association, and other like bodies. This board holds a session once a month, and through a well developed system of committees, almost everything of importance in the conduct of war, from the standpoint of medicine and sanitation, is discussed, and recommendations are presented. These recommendations are in turn presented to an executive committee on the following day, this committee consisting of the Surgeon-Generals of the Army, the Navy and the Public Health Service, the chairman and vice chairman of the General Medical Board, Dr. Victor C. Vaughan, Dr. William J. Mayo, Dr. William H. Welch, and Rear Admiral Cary T. Grayson. The chairmen of the various committees make recommendations. If these recommendations are approved by the executive committee, they are taken to the council, and if approved by that body, are distributed in the way of information to those in authority in the bureaus concerned.

In each state and county there have been organized state and county committees which place us in touch with all county medical societies. Through this rather complicated, but very effective, organization, we have been able to place much to the credit of the Advisory Commission. Our accomplishments may be summarized as follows:

1. We have succeeded in enrolling 21,000 civilian physicians for the Medical Reserve Corps.

2. We have aided, through the Munitions Board and other agencies connected with the Advisory Commission, in obtaining supplies for the medical departments of the Army, the Navy, the Public Health Service, and the American Red Cross.

3. Through conferences with experts, called at different times, which conferences appointed committees and cooperated with the Surgeon Generals, we have prepared and published standard tables of instruments, drugs, hospital supplies, and hospital equipment. These tables carefully record by number all materials made in this country that are available for our work.

4. One of the conferences of deans of medical schools succeeded in adjusting the difficulties in enrolling a large number of civilian physicians as reserve officers from among the teaching forces of the medical schools.

5. Another conference discussed in detail the proper handling of venereal diseases and the relation of the alcohol problem to venereal diseases. This conference resulted indirectly in the appointment of the Fosdick Committee and of our strong committee in the Council of National Defense, dealing with the venereal disease problem, and emphasized in the Surgeon-General's Office the importance of this problem.

Two matters of unusual importance have been taken up recently by the General Medical Board of the Council of National Defense. One is the organization of a volunteer medical service corps. Briefly, this consists of men who have offered their services to the Surgeon-General and who, for physical or other reasons, have been exempted, and for medical men over the enrolment age who are willing to do some kind of service for their government, preferably along military lines. The original recommendation of the committee formulating the plans for this service stated that this organization could be of service to the government in the following ways:

1. By aiding in the work of selective enlistment. This is now being done by the Medical Advisory Boards, many of whose members should be eligible to the Volunteer Medical Service Corps.

2. By acting in general as consultants wherever consultation may be necessary for enlisted men.

3. By maintaining in the best possible condition the medical services of hospitals, medical colleges and laboratories, depleted by absence of those in active duty.

4. By reclamation of registrants rejected for physical unfitness under the Selective Service Law.

5. By caring, so far as possible, for the families and dependents of enlisted men.

6. By aiding in the general sanitation of the country.

The formal recommendations for the organization of the Volunteer Medical Service Corps, accepted and approved by the Council, are retained in the following resolutions:

Resolved, That the Council of National Defense authorize the Medical Section of the Council of National Defense to organize a Volunteer Medical Service Corps to include in its membership those physicians ineligible for membership in the Medical Officers Reserve Corps on account of physical disability, over age, essential public or institutional needs and women physicians, for the purpose of making available the services of such physicians in any way deemed advisable by the Surgeon-General of the Army, Surgeon-General of the Navy, Surgeon-General of the Public Health Service, or the Council of National Defense: and be it further

Resolved, That an appropriate insignia be authorized to be worn by the members of the Volunteer Medical Service Corps, the form of such insignia to be designed by the Medical Section of the Council of National Defense.

The important organization, in all its details, will be under the direction and authority of the General Medical Board of the Council of National Defense.

The second innovation to which I refer is the establishment or authorization of the council of a committee on industrial hygiene and surgery.

DISCUSSION

Dr. J. M. Baldy, Philadelphia: The difficulty of administering the laws of the state is largely one of politics. There is constant political pressure brought to bear on us, but we should always act on the merits of a case irrespective of the result. Most state board members, however, are placed there by politicians. Oftentimes, for political reasons, members of boards are removed as rapidly as their terms expire. They have no chance or opportunity to realize the obligations of their positions, and as a result politics enters very largely into the administration of state boards of health and examiners. There are very few states in which a more successful step has been taken against the interference of politicians than in Pennsylvania; but sometimes the irregular medical crooks come in such a way that, in spite of all we can do, they will slip through our hands.

Dr. Walter L. Bierring, Des Moines, Iowa: We ought to have an information bureau, and we should take advantage of the bureau conducted by the American Medical Association. From my association with the bulletins issued to state boards, I know it has complete data on irregular practitioners and the other matters referred to by the president.

Dr. Walter P. Bowers, Boston: Two years ago a man appeared in the examination of the Massachusetts board, and it was discovered he was impersonating a Russian Jew. He hailed from New York. That investigation led to the discovery that a man who lived in Philadelphia was carrying on a bogus diploma mill. He agreed for a sum of money to secure registration for an individual in Massachusetts. The state police of Massachusetts went to Pennsylvania, secured extradition papers and brought that man back to Massachusetts. He was tried and convicted, and sent to jail. The state board in Massachusetts is not bothered with politicians.

Dr. Hubert A. Royster, Raleigh, N. C.: One of the worst cases the board of North Carolina has had to deal with came from Pennsylvania. A man with a diploma from a Class A school appeared before our board for reciprocity. He was examined twice and failed. He then went to New Jersey, was licensed by that state board, and he is now in the Reserve Corps of the Army. Politicians do not control the board in North Carolina. Our board is not appointed by the governor, but is elected by the state medical society.

Mr. Augustus A. Downing, Albany, N. Y.: State boards cannot be too careful about the identification of the men who take their licensing examinations. Through the cooperation of Dr. Bowers and the Massachusetts state detective, we have just returned to Massachusetts a *bona fide license* to practice medicine in that state, which was given to a pharmacist who was never inside a medical school. We also have got the man who impersonated this pharmacist in the Massachusetts examination.

Dr. N. P. Colwell, Chicago: At the Association headquarters we have a complete official list of the graduates of all medical schools, and have the means of knowing whether a man graduated from a medical school or not. Recently a man licensed in a Southern state claimed graduation from an extinct medical college. We found that his name did not appear either among the graduates or among the students of that college. We have written to the graduates of the college of the year in which he claims to have graduated, asking whether they know anything about him. The replies thus far received do not indicate that he ever graduated from the school. We have been getting reports, such as Dr. Strickler has referred to, from only a few states. It would be better if we could get that information from all of them.

Dr. Herbert Harlan, Baltimore: We should have a bureau of registration and information. I would urge all gentlemen present to read the last issue of the *Monthly Bulletin* of the Federation, which gives the photographs of diplomas and details in regard to certain cases. Such information as that is valuable.

Dr. David A. Strickler, Denver: In Colorado the board is not forced to license any individual. The applicant must satisfy the board as to his moral character. The courts hold that it is our duty to ascertain that fact, and they will not go back of our returns.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, 1918, 15, No. 2

1 *Etiology of Phlyctenular Conjunctivitis. W. S. Gibson, Chicago.—p. 81.
2 Surgical Diseases of Urinary Tract in Children. A. Hyman, New York.—p. 116.
3 Sexual Precocity in Male; Report of Case. A. Strauch, Chicago.—p. 132.

1. **Phlyctenular Conjunctivitis.**—Clinical observations in ninety-two cases of phlyctenular conjunctivitis revealed the presence of tuberculosis in ninety cases, as shown by a positive von Pirquet test. In the two giving a negative reaction, the diagnosis was doubtful. No other condition, either local or general, could be found with sufficient frequency even to suggest any direct influence in producing the disease. Phlyctenules were produced experimentally in tuberculous rabbits in eight instances; six times as a complication of a conjunctival reaction resulting from the instillation of tuberculin, twice in the absence of local irritation of any kind. Numerous attempts to produce the condition in animals not tuberculous were unsuccessful. The pathology of the experimental lesions was similar to that of human phlyctenules. The microscopic findings suggested a tuberculous origin. Gibson is convinced that all clinical, experimental and pathologic evidence points to tuberculosis, and tuberculosis alone, as the cause of phlyctenular disease.

Annals of Surgery, Philadelphia

January, 1918, 67, No. 1

4 *Results of Blood Transfusion in War Surgery. L. B. Robertson and C. G. Watson.—p. 1.
5 *Use of Dichloramin-T in Treatment of Infections and Infected Wounds. W. E. Lee and W. P. Furness.—p. 14.
6 Birth Injuries of Shoulder; Report of Cases. A. P. C. Ashhurst, Philadelphia.—p. 25.
7 *Pulse Rate and Blood Pressure Observations as Aid in Treatment of Head Traumas. P. R. Sieber, Pittsburgh.—p. 51.
8 Fractures of Spine with Cord and Root Symptoms. C. A. Elsberg, New York.—p. 63.
9 *So-Called Mixed Tumors of Salivary Glands. J. Forman and J. H. Warren, Columbus.—p. 67.
10 Case of Hygroma Colli. L. Kahn and S. Graves, Louisville, Ky.—p. 71.
11 Pulmonary Teratoma; Report of Case. H. R. Black, Spartanburg, S. C., and S. O. Black, Rochester, Minn.—p. 73.
12 Gastroduodenostomy: Its Indications and Technic. D. C. Balfour, Rochester, Minn.—p. 80.
13 *Technic of Operation for Repair of Ileocecal Valve. Results in Twenty-Six Cases. J. H. Kellogg, Battle Creek, Mich.—p. 83.
14 Case of Dumb-Bell Stone in Diverticulum of Urinary Bladder. P. Martin, Buffalo.—p. 94.
15 Recognition of Certain Lesions of Male Bladder. E. M. Watson, Buffalo.—p. 96.
16 Treatment of Gonorrheal Epididymitis, Complicated by Peri-Epididymitis. C. S. Vivian, Humboldt, Ariz.—p. 103.

4. **Results of Blood Transfusion in War Surgery.**—Robertson and Watson report on transfusion in twenty-six cases of severe primary hemorrhage accompanied by shock. In four cases of this series the citrate method was used; in one case transfusion was done with the Unger two-way stop-cock. The remainder were transfused by the Lindeman syringe-cannula method. The results obtained have shown: first, that certain patients heretofore considered as inoperable, and others as exceedingly bad surgical risks, often may be revived to a degree which not only permits of radical operative measures, but ensures a good prospect of ultimate recovery; second, in other cases in which the postoperative condition is one of progressively increasing shock, due to the initial loss of blood and to the severity of the operative measures required, blood transfusion is a permanent resuscitative measure of extreme value. In the cases of severe primary hemorrhage 700 to 1,000 c.c. were regarded as constituting an average amount and usually tided the patient over his crisis. Smaller amounts have been given with some success, but the most immediate and lasting improvement has been obtained with the large amounts. Cardiac dilatation in these

exsanguinated recipients has not been observed even with the larger amounts given.

In transfusing 1,000 or 1,200 c.c. the intervals between the injections of the blood filled syringes should be longer toward the latter part than at the beginning of the procedure, and the minimum amount of saline should be introduced into the recipient's vein between the injections of the blood filled syringes. A wounded man who has lost much blood and has a blood pressure below 90 mm. Hg is not a good subject for operation; with a blood pressure below 70 mm. Hg he is in a precarious condition. Loss of blood intensifies to a very great degree the amount of shock produced by traumatism, and in the majority of such cases the immediate issue depends on control or elimination of the effects of hemorrhage. In this series many patients admitted in an inoperable condition from severe hemorrhage have been rendered operable by blood transfusion.

The largest factor in the causation of the shocked condition as seen in patients admitted to a casualty clearing station appears to be the loss of blood, except in case of visceral injury. In two cases hemolysis hastened the death of the patient—in one of these the citrate method was used. The results in this series of cases of severe primary hemorrhage may be classified as: life saving, 22; immediately beneficial but died from infection or operation, 9; no benefit, 3; harmful, 2; total, 36. Although the mortality in this series of cases is comparatively high, the patients were in a desperate condition, and with perhaps one exception could not have been expected to survive if the procedure had been withheld.

5. **Dichloramin-T in Treatment of Infections and Infected Wounds.**—The authors have records of 6,028 civil cases in which dichloramin-T has been used, and of four months' work and 1,200 cases reported by Captain Joshua Sweet with war wounds in the U. S. Base Hospital No. 10 in France. With dichloramin-T they have been able to obtain as good results as they have ever had when using the Dakin hypochlorite solutions with the complicated technic of Carrel. In addition, they found that skin irritation will not occur if the wounds are not covered with thick occlusive dressings. This means the use of the smallest possible amount of gauze dressing and bandage. The small amount of exudate from wounds treated with dichloramin makes it practical to use these thin dressings, and in one institution there has been a saving of 75 per cent. of the gauze and bandages formerly used. Further, a still greater saving in dressing material and time results from the decrease in the number of dressings required for each wound during the period of healing. Rarely is it necessary to dress a wound, even during the first few days, more frequently than once in every twenty-four hours, and after that, intervals of forty-eight and seventy-two hours are usual.

Dichloramin, unlike the aqueous hypochlorite solution, has no effect on the knots of catgut ligatures, and no disintegrating effect on the catgut itself. The occurrence of secondary hemorrhages in wounds treated by the Carrel method was not uncommon in the authors' experience at the American Ambulance. Captain Sweet reports that, in his 1,200 cases of major infected military wounds, there was not one secondary hemorrhage. Too great stress cannot be laid on the value of dichloramin-T as a deodorant dressing. The authors emphasize again the fact that one should not depend on a chemical agent to perform, in the treatment of suppurating wounds, that which can and should be done quickly and thoroughly by mechanical means. Neither chemistry nor bacteriology can, or should be expected to replace the mechanics of surgery. At the best, these chemical germicides can react only on the bacteria with which they come in contact, which means a very superficial process. Therefore, at the primary operation all foci of infection and all devitalized tissue must be removed when possible, by surgical procedures.

7. **Pulse Rate and Blood Pressure in Head Traumas.**—Twenty-six, or 34.2 per cent. of Sieber's 76 cases presented signs of an increased intracranial pressure, accompanied by an elevation in the blood pressure and slowing of the pulse rate. In nineteen, or 73 per cent. of these, the pressure reached such a degree as to endanger the life of the patient and operation was necessary. Ten of the nineteen patients operated on made good recoveries. Of the nine deaths, two were the result of pneumonia and two of meningitis. In each of these cases pressure was relieved by operation and there was every promise of recovery until infection occurred.

In the remaining five cases decompression did not avert a fatal outcome, although at operation all showed evidence of a high grade of intracranial pressure. Twenty-three, or 30.2 per cent., of the 76 cases, when first seen, presented evidence of an advanced medullary compression or severe brain injury. In many of these cases the regulatory vasomotor mechanism had collapsed and was no longer able to maintain the arterial pressure above the high intracranial tension. In other cases the rapidly decreasing blood pressure and increasing pulse rate showed that the vasomotor mechanism was still making a feeble effort to supply sufficient blood to the bulbar centers. Of the twenty-three patients in this group, 20 resulted in death, a total mortality of 87 per cent. In 12 cases an attempt was made to relieve pressure by operation, although they presented signs of advanced compression, evidenced by irregular, shallow respiration and a rapid, low tension pulse. Only three patients recovered, giving an operative mortality in this group of 75 per cent. All the patients in this group that were not operated on died.

9. **Mixed Tumors of the Salivary Glands.**—From a study of seven specimens of the so-called mixed tumors of the salivary glands, the authors believe that there is in the head and branchial region of the human embyro mesenchyme which has been derived from ectoderm, and that inclusion or misplacement of this ectodermal mesenchyme gives rise to the so-called mixed tumors of the salivary glands.

13. **Repair of Ileocecal Valve.**—The number of cases which have been definitely cured of ileac stasis by repair of the ileocecal valve and removal of mechanical hindrances in the distal colon is now so considerable that Kellogg feels justified in making the claim that the lesions mentioned are the true cause of ileac stasis rather than Lane's kink, and in maintaining that when surgical interference becomes necessary the procedure indicated is the simple one of repair of the valve rather than the serious and mutilating operation of short circuiting or of colectomy, except in cases in which the existence of obstructive lesions can be proved.

Arkansas Medical Society Journal, Little Rock

January, 1918, **14**, No. 8

17 Experience at County Hospital; Report of Cases. A. L. Carmichael, Little Rock.—p. 159.
18 Shall Physician Tell the Truth? T. Cothern, Jonesboro.—p. 165.

Boston Medical and Surgical Journal

Jan. 31, 1918, **178**, No. 5

19 Mental Conditions Disqualifying for Military Service. L. V. Briggs, Devens.—p. 141.
20 Vaginal Discharge in Children; Study of Two Hundred and Fifty-Five Selected Cases, with Special Reference to Question of Diagnostic and Specific Value of Smear Examinations. I. C. Rubin, New York.—p. 147.
21 Primary Lesion of Tuberculosis; Its Significance, Diagnosis and Treatment. W. W. Howell, Boston.—p. 152.
22 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 156.

Georgia Medical Association Journal, Augusta

January, 1918, **7**, No. 9

23 Radium as Therapeutic Agent for Cancer of Cervix and Uterine Hemorrhages. O. D. Hall, Atlanta.—p. 177.
24 Southern Surgeons for Southern Soldiers. C. C. Harrold, Macon.—p. 181.
25 Exophthalmic Goiter; with Special Reference to Etiology and Roentgen Ray Treatment. W. A. Cole, Savannah.—p. 186.
26 Syphilis of Nervous System and Its Treatment. J. N. Brawner, Atlanta.—p. 190.
27 Relation of Focal Infections to Ocular Diseases. E. S. Osborne, Savannah.—p. 197.

Journal of Cutaneous Diseases, Chicago

January, 1918, **36**, No. 1

28 Two Cases of Bowen Type of Epithelioma. H. Morrow and A. W. Lee, San Francisco.—p. 1.
29 Erythema Multiforme, Associated with Cutaneous Pigmentation (Melanin). E. W. Abramowitz, New York.—p. 11.
30 Case of Sclerema Neonatorum and Scleroderma. D. Lieberthal, Chicago.—p. 29.
31 Case of Acanthosis Nigricans Following Decapsulation of Kidneys. F. Wise, New York.—p. 35.

Journal of Infectious Diseases, Chicago

February, 1918, **22**, No. 2

32 *Theory of Anaphylactic Shock. J. L. Kritchewsky, Moscow, Russia.—p. 101.
33 *Specific Precipitins in Gonococcal Infections. T. Watabiki, Tokyo, Japan.—p. 115.
34 *Brilliant Green as Bactericidal Agent for Purification of Vaccine Virus. C. Krumwiede, Jr., F. S. Fielder and T. A. Watson, New York.—p. 118.
35 *Determination of Numbers of Histidin Decarboxylating Organisms in Feces in Dementia Praecox as Compared with Numbers in Normal Feces. H. M. Jones, Chicago.—p. 125.
36 *Rôle of Specific Fats in Complement Fixation. C. C. Warden, Ann Arbor, Mich.—p. 133.
37 Experimental Vaccine Shock and Resistance to Tuberculosis. E. Sexsmith and W. Petersen, Chicago.—p. 142.
38 Relation of Serum Ereptase (Peptidase) Titer to Clinical Course in Pneumonia. W. Petersen and C. A. Short, Chicago.—p. 147.
39 Trypanosome of Panamanian Cattle and Method for Concentrating Trypanosomes in Peripheral Blood. O. Teague and H. C. Clark, Ancon, C. Z.—p. 154.
40 Piroplasmosis of Cattle in Panama. H. C. Clark, Ancon, C. Z.—p. 159.
41 *Epidemic Poliomyelitis. Isolation and Cultivation of Globoid Bodies. G. D. Heist, M. S. Cohen and J. A. Kolmer, Philadelphia.—p. 169.
42 *Id. Study of Opsonic Action of Poliomyelitic Serum on Various Organisms Isolated from Fatal Cases of Poliomyelitis. M. S. Cohen and G. D. Heist, Philadelphia.—p. 175.
43 *Id. Comparative Studies of Cocci Isolated from Poliomyelitis. G. D. Heist and M. S. Cohen, Philadelphia.—p. 182.

32. **Anaphylactic Shock.**—Kritchewsky undertook to solve the problem, whether the cotyledon juice which is able to precipitate animal serum and bacterial extracts, to agglutinate bacteria and blood corpuscles, and to lake the latter has the power to provoke the clinical and anatomic changes characteristic of anaphylactic shock, when introduced into the living animal. The experiments gave a positive answer. The guinea-pigs and rabbits which received the fluid intravenously died; the clinical picture and the anatomic changes were those of anaphylaxis. The shock and the death after injection of the cotyledon fluid are due to change in the degree of the disperseness of the plasma colloids.

33. **Precipitins in Gonococcal Infections.**—Watabiki studied the questions of precipitins in gonococcal infection, and in antigonococcus serum, also whether precipitation will distinguish between the gonococcus and the meningococcus, and whether it will permit the grouping of gonococci. He found that the serum of patients with gonococcal infection may contain specific gonococcal precipitates, but this seems to be the case when the infection has been severe and has lasted for some time. The serum of patients with typhoid or other infections, not gonococcal, does not contain gonococcal precipitin. The serum of rabbits injected with 8 strains of gonococci contained precipitin, each one for all the different gonococci; but in the case of 2 strains the extract gave precipitates in lower dilutions with the serum of the other six rabbits than with homologous serum, and their serum gave precipitates with the other six extracts in lower dilutions than the homologous extract. The serum of rabbits injected with the meningococcus, *M. catarrhalis* and the colon bacillus gave no precipitates with gonococcal extracts. Apparently antigonococcus serum is not as rich in specific precipitin as in agglutinins and complement-fixing bodies, but the precipitin reaction distinguishes more definitely between gonococci and meningococci, as well as *M. catarrhalis*, than complement fixation.

34. **Brilliant Green for Purification of Vaccine Virus.**—The data presented by the authors in this article show that brilliant green has little, if any, influence on the potency of vaccine virus, and added to the present glycerol-carbolic preservative, gives a more efficient and more rapidly bactericidal preservative.

35. **Histidin Decarboxylating Organisms in Feces.**—An organism similar to the one described by Berthelot and Bertrand has been isolated by Jones; it is shown to differ from *B. mucosus* by its inability to form gas and acid in glycerol broth. This organism, called *B. aminophilus*, does not form histamin from histidin when a more available source of carbon of the carbohydrates is present. A selective plating medium for isolating this organism from mixed culture has been devised. By this medium it was shown from an examination of samples from thirty-eight different stools, that *B. aminophilus* ordinarily is not found in the human intestinal tract in sufficient numbers [illegible] be isolated by direct plating of a quantity of feces representing from 20,000 to 100,000 living bacteria.

36. **Specific Fats in Complement Fixation.**—Warden says that the value of antigens in serum tests for the presence of antibody in gonorrhea, syphilis, typhoid, and cholera appears to depend on fatty complexes of definite chemical arrangement or configuration which represent the fatty content of the several micro-organisms causing those diseases. The reactions of the test are surface reactions and depend on the physical state of the antigen. The serum test as applied to tuberculosis is fallacious and unreliable probably because of the absence of sensitizers in the serums.

41. **Globoid Bodies in Epidemic Poliomyelitis.**—The authors record the isolation from human and monkey poliomyelitic material of four different strains of an organism which morphologically and culturally agrees in every particular with the descriptions of the globoid bodies of Flexner and his associates. It was observed that the macroscopic appearance of tubes of kidney-ascitic fluid medium which contain good growths of this organism differs from that of the uninoculated control tubes to such a slight degree that often inspection of the tube alone is of no value in determining the presence or absence of a growth.

42. **Opsonic Action of Poliomyelitic Serum.**—Cohen and Heist studied a number of streptococci and other bacteria from the brain, cord and internal organs of fatal cases serologically to see if serum from patients with poliomyelitis would give a specific opsonic reaction with [illegible] them that might point toward its presence at some time in the tissues of the patient. In addition to and distinct from the globoid bodies, there is frequently present in poliomyelitic material a rather large streptococcus, occurring in short chains. The serums of a large precentage of patients with poliomyelitis give high opsonic indexes with this streptococcus, but not with streptococci from nonpoliomyelitic sources, nor with staphylococci, diphtheroids and gram-negative bacilli obtained from poliomyelitic material.

43. **Study of Cocci from Epidemic Poliomyelitis.**—Eight strains of cocci were isolated from poliomyelitic material, examined by the authors by elementary bacteriologic methods, and also by methods aimed to establish their more intimate functional relationships. None of these strains fermented inulin and they were all short chain streptococci, and that none of them produce hydrogen sulphid, would serve to exclude them from any of the Andrewes and Horder's types except *Streptococcus mitis* or *Streptococcus salivarius*, the common habitat of both of which is the human mouth.

Laryngoscope, St. Louis

January, 1918, **28**, No. 1

44 Treatment of Suppuration of Accessory Sinuses of Nose. E. B. Gleason, Philadelphia.—p. 1.
45 Lymph Angioma of Larynx. C. W. Richardson, Washington, D. C.—p. 8.
46 Etiology of Speech Defects. M. K. Scripture, New York.—p. 12.
47 Mechanical Spoon for Esophagoscopic Use. C. Jackson, Philadelphia.—p. 47.
48 Esophagoscopic Forceps. C. Jackson, Philadelphia.—p. 49.
49 Improved Snare. C. B. Harwood, Houston, Texas.—p. 50.

Maine Medical Association Journal, Portland

January, 1918, **8**, No. 6

50 Can We Prevent Gastric Cancer? R. F. Chase, Portland.—p. 163.
51 First Aid to War Wounded. W. W. Robinson, Portland.—p. 166.

Medical Record, New York

Feb. 2, 1918, **93**, No. 5

52 Problems of Drug Addiction. C. L. Dana, New York.—p. 177.
53 Initial World War Material at Army Medical Museum. R. W. Shufeldt, Washingfon, D. C.—p. 179.
54 Venereal Diseases; Their Relations to Insanity and Nervous Diseases. J. J. Kindred, River Crest, Astoria, L. I.—p. 184.
55 Autointoxication—Etiologic Factor of Neuroses of Children. W. R. Woodbury, Rochester.—p. 185.
56 Sanitary Condition of Mikvehs and Turkish Baths. W. A. Manheimer, New York.—p. 189.
57 *Complement Fixation in Tuberculosis.* W. Meyer, West Hoboken, N. J.—p. 193.

New York Medical Journal

Feb. 2, 1918, **107**, No. 5

58 Carrel Treatment of Wounds of War. F. Le M. Hupp, Wheeling, W. Va.—p. [illegible]
59 Psychologic, Physiologic and Pharmacologic Basis of Nicotinism, Alcoholism and Morphinism. J. L. Tracy, Toledo, Ohio,—p. 197.
60 Postoperative Tetanus. M. Behrend, Philadelphia.—p. 199.
61 Nonsurgical Treatment of Cancer. A. C. Geyser, New York.—p. 203.
62 Analysis of Seven Cases of Friedreich's Ataxia. M. Osnato, New York.—p. 204. To be concluded.
63 Active Immunization Against Diphtheria. J. Blum, New York.—p. 208.

South Carolina Medical Association Journal, Greenville

January, 1918, **14**, No. 1

64 Cysts of Pancreas. J. R. Sparkman, Columbia.—p. 5.
65 Abdominal Pain. B. B. Steedly, Spartanburg.—p. 10.

Southern Medical Journal, Birmingham, Ala.

January, 1918, **11**, No. 1

66 Physicians and Healers. G. Dock, St. Louis.—p. 1.
67 *Chemical Analysis of Blood as Index to Treatment. J. S. McLester, Birmingham.—p. 14.
68 Teaching of Clinical Neurology. T. A. Williams, Washington, D. C.—p. 17.
69 Public Health in War Times. E. G. Williams, Richmond, Va.—p. 21.
70 War in Its Effects on Development of Tuberculosis. C. L. Minor, Asheville, N. C.—p. 24.
71 County Health Organization. A. T. McCormack, Bowling Green, Ky.—p. 29.
72 Traumatic Brain Surgery. J. W. Long, Greensboro, N. C.—p. 31.
73 Some of Common Errors in Gynecology. F. W. Griffith, Asheville, N. C.—p. 40.
74 Attitude of Railway Surgeon and His Relation to Claims Department. J. M. Burke, Petersburg, Va.—p. 42.
75 Gene[illegible]y in Army. W. H. Moncrief, Washington, D. C.—p. 4[illegible]
76 Changed Conditions in Practice of Ophthalmology and Otology Due to War. T. W. Moore, Huntington, W. Va.—p. 49.
77 Secondary Hemorrhage Following Submucous Resection Six Days after Operation. D. C. Montgomery, Greenville, Miss.—p. 49.
78 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood, Baltimore.—p. 51.

67. Abstracted in The Journal, April 28, 1917, p. 1287.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

January, 1918, **26**, No. 1

79 Cesarean Section as Life Saving Procedure in Puerperal Eclampsia. J. A. Foltz, Fort Smith, Ark.—p. 1.
80 Use of Lumbar Puncture in Puerperal and Postpartum Eclampsia. W. T. Wilson, Navasota, Texas.—p. 5.
81 What the Superintendent of Hospital Means to Scientific Medicine. C. S. Pettuss, Little Rock, Ark.—p. 15.

Surgery, Gynecology and Obstetrics, Chicago

February, 1918, **26**, No. 2

82 *Excision of Vesical Diverticula after Intravesical Invagination by Suction: New Method. H. H. Young, Baltimore.—p. 125.
83 Premature Separation of Normally Implanted Placenta in Two Cases. A. H. Morse, New Haven, Conn.—p. 133.
84 *War Wounds of Knee-Joint among French Soldiers. J. R. Judd, Honolulu, Hawaii.—p. 139.
85 *Dichloramin-T. E. K. Dunham, New York.—p. 152.
86 *Use of Dichloramin-T in Treatment of Infections and Infected Wounds. W. E. Lee and W. P. Furness, Philadelphia.—p. 155.
87 *Ascending Urinary Infections; Experimental Study. V. C. David, Chicago.—p. 159.
88 *Experimental and Clinical Study of Chloroform, Ether and Nitrous Oxid-Oxygen in Pregnancy and Labor. C. H. Davis, Chicago.—p. 170.
89 Combined Bacteriologic and Histologic Study of Endometrium in Health and in Disease. A. H. Curtis, Chicago.—p. 178.
90 Colon Bacillus Infection, Extragenital, Complicating Pregnancy and Puerperal State. E. P. Davis, Philadelphia.—p. 189.
91 Rider's Tendon; Rupture of Adductor Tendons of Thigh. W. T. Davidson.—p. 192.
92 Experimental Physiologic Action of Ovarian Extracts. G. P. Gonalons.—p. 196.
93 Acute Diverticulitis of Colon. J. F. Erdmann, New York.—p. 207.
94 Recognition and Treatment of Intestinal Diverticula. D. Roberts, Brooklyn.—p. 211.
95 One year's Experience (1916) with Gunshot Wounds of Abdomen at Memphis General Hospital; Report of Fifty Cases. M. Goltman, Memphis, Tenn.—p. 217.
96 Treatment of Fractures by Suspension and Extension. J. E. Cannaday, Charleston, W. Va.—p. 226.
97 *Simple Method of Performing External Perineal Urethrotomy. J. D. Barney, Boston.—p. 232.
98 Action of Radium on Cancer. H. H. Janeway, New York.—p. 233.
99 Modified Uterine and Viscera Forceps for Careful Manipulation of Tissue. A. J. Schoenberg, Chicago.—p. 237.
100 Experience in Glasgow Royal Maternity and Woman's Hospital in Summer of 1916. W. F. Hewitt, Chicago.—p. 238.

82. **Excision of Vesical Diverticula.**—The invagination of diverticulum by suction and traction is done by Young as follows: The diverticular orifice is investigated, and if necessary dilated with forceps. Into this orifice a glass tube is inserted to the full depth of the diverticulum, and immediate suction with an electric air pump is commenced. It is usually evident, almost at once, that the mucous membrane has been drawn against the orifice, and the tube is then drawn very slowly outward, a small distance, the suction being continued until the mucous membrane of the diverticulum is seen coming upward inside of the glass tube. Not infrequently the mucous membrane reaches a point 1½ to 2 inches above the bottom of the tube. The glass tube is then slowly drawn out, bringing the diverticular mucosa with it, and as soon as the end of the tube is outside of the diverticular orifice, the mucous membrane is caught with a toothed clamp, and the glass tube then removed. The intravesical delivery of the diverticulum is then completed by traction, the operator using sharp-toothed clamps applied at various points around the circumference, and then possibly further dilating the diverticular orifice in case the sac is very large and difficulty is experienced in delivering the whole diverticulum through the small orifice. As soon as the entire diverticulum has been turned inside out within the bladder, a circular incision is made through the mucous membrane around the neck of the diverticulum and the mucous membrane elevated at one point. Then, by blunt dissection, it is a simple matter to peel away and remove in one piece the entire lining membrane of the diverticular sac, the excised tissue consisting merely of mucosa and submucosa.

84. **War Wounds of Knee-Joint.**—Judd points out that the resisting powers of the synovia and ankylosing tendencies vary in individuals. In the presence of an infected projectile and infected joint fluid, the synovia may still be uninfected for a certain period. Fissures extending to the articular surface are important and are often unrecognized. Secondary infection of the ankle-joint sometimes occurs unexpectedly and is a grave complication. The earlier methods of noninterference, drainage tubes, and wholesale removal of bone have yielded disastrous results. The mortality has been greatly reduced by improved methods of treatment. Perforating wounds traversing the joint should be treated by puncture, compression and immobilization. For wounds with foreign bodies included, with or without bony lesions, early intervention is the secret of success. The new era in knee-joint surgery calls for arthrotomy within forty-eight hours, removal of projectile, foreign bodies and loose fragments, excision of path of projectile, cleansing of joint and suture without drainage. Extensive bony lesions demand primary resection. From all points of view vital preservation of the limb and its function and duration of hospital stay, the results of the improved method are vastly superior.

85. **Dichloramin-T.**—Dunham says that dichloramin-T is so slightly soluble in water that aqueous solutions must necessarily be ineffective, although the reactivity of the compound is extremely high. But solutions in oil can be used in great concentration, up to 20 per cent. if need be, thus introducing an extraordinary mass of antiseptic at a single application. And this abundant and apparently excessive mass can become effective, without undue irritation. When an oil solution of dichloramin-T is brought into contact with an aqueous medium, a portion of the active chlorin passes from the oil into the latter, and the amount so transferred depends on the character of the substances contained in the aqueous medium, particularly their ability to take up chlorin. Three experiments are cited in illustration: A 6.5 per cent. solution of dichloramin-T in eucalyptol and liquid petrolatum was shaken with, respectively, equal volumes of physiologic sodium chlorid solution, of muscle extract and of blood serum. After standing for three hours, the oil was completely separated and the active chlorin in the aqueous portion determined. The re[illegible] in terms of dichloramin-T, were: 1:6

in the saline; 1:300 in the muscle extract, and in the serum, which was mostly coagulated, 1:111.

86. See The Journal, Sept. 29, 1917, p. 1076.

87. **Ascending Urinary Infections.**—Evidence is presented by David to show that ascending *Bacillus coli* infection of the upper urinary tract from the bladder travels most frequently by the lumen of the ureter. Periureteral infiltration is present only when peritoneal exudate of the bladder or pelvic peritoneal exudate is also present. Periureteral or subpelvic exudate is not synonymous with infection of the urinary stream. In the presence of periureteral or subpelvic infiltration the kidney parenchyma is negative in most instances. The infection of a hydronephrosis where the ureter is ligated and divided and comes in contact with infectious material may take place by spreading through periureteral lymphatics to the subpelvic fat and by contiguity involve the pelvis of the kidney.

88. **Chloroform, Ether, Nitrous Oxid-Oxygen in Labor.**—Since it is evident that anesthesia during pregnancy may be a source of considerable danger to the fetus, Davis believes that operations should be avoided, if possible, during this period. The fetus in utero and the new-born would appear to stand ether anesthesia better than chloroform or nitrous oxid-oxygen.

97. **Method of Performing External Perineal Urethrotomy.**—A soft rubber catheter, well lubricated, and of suitable size, is passed through the penis into the bladder until the outer end of the catheter is almost level with the external meatus or the end of the urethra (as the case may be). The catheter is seized 0.5 cm. from its outer end with a half curved clamp of appropriate size and length. The clamp is passed down the urethra, its convexity against the roof, until its point is felt pressing against the floor of the bulb. The catheter has meantime been pushed ahead of the clamp and coiled in the bladder. The point of the clamp is now made to impinge against the perineum, bulging it outward in the median line. The urethra is opened at this point by an incision, which need not be more than 1 cm. in length, and the end of the clamp, still grasping the catheter, easily merges through the wound. The clamp is opened and withdrawn upward through the urethra and the catheter is drawn outward through the perineal incision until its eye lies correctly in the bladder. It is secured in place by a coarse silkworm-gut suture passed through the edges of the perineal wound and tied tightly around the catheter. Constant drainage of the bladder is thus established by connecting the catheter with a bottle by the bedside, or simply by letting it lie in a urinal which the patient keeps between his legs in bed.

Texas State Journal of Medicine, Fort Worth

January, 1918, **13**, No. 9

101 Etiology of Winter Hay-Fever in Texas. S. N. Key, Austin.—p. 308.
102 Control of Diphtheria in Small Town. J. R. Elliott, and H. H. Loos, Palacios.—p. 309.
103 Surgery of Bones and Joints; with Especial Reference to Tuberculosis. C. M. Rosser, Dallas.—p. 311.
104 Pneumonia. *O. W. Ross, Leona.*—p. 314.
105 Surgery of Deformities of Spine. C. S. Venable, San Antonio.—p. 316.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Jan. 12, 1918, **1**, No. 2976

1 *Orthopedic Outlook in Military Surgery. R. Jones.—p. 41.
2 Separate Suture of Nerves in Nerve Trunks. J. N. Langley.—p. 45.
3 *Antenatal Syphilis: Suggested Action of Chorionic Ferments. A. J. Routh.—p. 47.
4 Course of Instruction in Venereal Diseases. D. Watson.—p. 48.
5 *Suggestions Toward Systematic Operative Treatment of Gunshot Wounds of Mandible. W. Trotter.—p. 49.
6 Solvents for Dichloramin-T. H. D. Dakin and E. K. Dunham.—p. 51.
7 *Skin Ink for Radiography. N. S. Finzi.—p. 52.
8 Drainage vs. Scraping in Operation of Curettage of Uterus. G. S. Thompson.—p. 53.

January 19, No. 2977

9 *Medical Aspects of Aeroplane Accidents. H. G. Anderson.—p. 73.
10 *Acute Yellow Atrophy in Syphilis. S. McDonald.—p. 76.
11 *Pericardial Knock. S. M. Smith.—p. 78.
12 Simple Apparatus for Nitrous Oxid-Oxygen Anesthesia. A. S. Wilson.—p. 78.
13 Anesthetics in Military Hospitals. T. Clarke.—p. 79.
14 *Treatment of Gunshot Wounds with Solution of Soap and Water and Primary Suture. J. B. Haycraft.—p. 80.
15 Serologic Investigation of Vincent's Angina. F. E. Taylor and W. H. McKinstry.—p. 82.

1. **Orthopedic Outlook in Military Surgery.**—The fact that about 50 per cent. of the wounded of this war have received injuries resulting in impairment of locomotor function and usefulness of limbs, Jones says, has brought the importance of orthopedic principles and methods of treatment into a prominence which no one had foreseen. In England the first orthopedic center was established in Liverpool, with a view of concentrating under one roof a staff trained in orthopedic principles and an equipment which could provide for all the stages of treatment necessary for the restoration of function. There now are sixteen centers in the British Isles containing close on 15,000 wounded. Of the men treated in these centers 75 per cent. have been returned to the army. An orthopedic center consists of: 1. A staff of surgeons who have had previous experience of the detail of orthopedic work, both operative, manipulative and educational. They plan the complete course of treatment. 2. Men with experience in operative surgery who, though not specializing in the work, are interested in it, and only need experience to fit them to take charge of wards in new centers as they are formed. 3. Still younger men who will ultimately go abroad. 4. The hospital further consists of a series of auxiliary departments, each under a medical man who has experience of the particular methods of the treatment he directs. These departments are the electric, the massage, the hydrologic, the gymnastic, and the curative workshops. The successful working of an orthopedic center depends on the coherent association of all departments in carrying out the plan of campaign mapped out by the surgeon when he sees the patient. The orthopedic problem is divided into two distinct parts—preventive orthopedics and corrective orthopedics. The latter is more especially the department of the trained orthopedic surgeon. The preventive requires the help of every surgeon who has to treat wounded men at any stage, especially the early stage.

3. See abstract No. 20, The Journal, Feb. 16, 1918, p. 491.

5. **Operative Treatment of Gunshot Wounds of Mandible.**—For considerations of treatment these cases may be conveniently divided into three classes: (1) fractures without considerable loss of substance, actual or probable; (2) fractures with considerable loss of substance, either actual from immediate destruction or probable from necrosis, but with the superficial soft parts more or less intact; (3) fractures with considerable destruction of bone and of the overlying soft parts—cases in which the bone and lower part of the face are "blown away." The first class obviously lends itself to treatment by intrabuccal fixation, and may be expected to give results almost as good as those of the ordinary fractured jaw of civil practice. The second class seems to be an especially common and troublesome type, and perhaps to lend itself to a more radical and systematic treatment than it usually receives. In cases in which large parts of the bone have had to be removed, the plastic reconstruction of the jaw has not proved to present insurmountable difficulties as a rule, and grafts, taken almost invariably from unaffected parts of the jaw itself, have been found an easy and satisfactory method of reestablishing the continuity and stability of the bone. As in these cases some part of the thickness of the bone usually is available for use as a graft, even in the affected region, the two-stage operation is not often necessary. The primary and immediate operation giving full access to the fracture with the purpose of limiting hemorrhage, sepsis and necrosis and attaining a limited and relatively aseptic scar, is an indispensable preliminary to a systematic application of plastic bone surgery to large destructive lesions of the mandible. If the surgeon keeps clearly in mind the principle that protection of raw surfaces in order to secure rapid

union must be the first consideration. the minor procedures that facilitate this will suggest themselves readily.

7. Skin Ink for Radiography.—The formula used by Finzi is as follows:

	gm. or c.c.
Acid. pyrogallic	1
Spirit. vini meth.	10
Liq. ferri perchlor. fort.	2
Acetone ....ad.	20

This gives a concentration of 5 per cent. pyrogallol and 2 per cent. iron. The solution is best kept in a bottle with a camel's-hair brush attached to the cork so that it can easily be painted on. The mark is a brownish gray at first, but after a few hours turns a brilliant black.

9. Aeroplane Accidents.—Scheme for first aid at an air station: The steward on being notified of an accident dispatches the ambulance, which stands always in readiness by the sick-bay, to the scene of the accident. Two sick berth attendants go with the ambulance, and with them is a bag containing the following articles: (1) morphin solution and two Wildey's hypodermic syringes; (2) a bottle of chloroform and face mask; (3) brandy; (4) a bottle of sterilized water; (5) six first-aid field dressings and slings; (6) picric acid dressings; (7) a tourniquet, cloth cutting scissors and a knife. The surgeon on duty is on the aerodrome during flying hours, and proceeds to the scene of the accident by car or foot. If the accident is at a distance, a mile or more, it is better to go by aeroplane. Anderson has now gone by air to cover thirty forced landings and accidents at a distance, and is convinced of the utility of this method in arriving quickly and not otherwise tired and out of breath after a long run. Officers and flight mechanics sent to the scene of the accident should be trained in first aid with special reference to aeroplane accidents.

The aeroplane seat cushion is taken from the machine and placed under the injured pilot's head, while his body rests on a flying coat spread out on the ground. A rapid examination is carried out to determine the injuries received. If the injured person is conscious and in much pain, morphin should be injected and he should be conveyed quickly to the dressing station, where clothes can be cut away, injuries examined, and treated accordingly. If unconscious, some cutting away of clothing can be done on the field, injuries examined, and perhaps a dislocation reduced or a fracture accurately diagnosed during the unconscious period. The pilot's leather clothing for a time usually protects the body, but the face and lower limbs rarely escape. As the pain is so severe, and this applies to other injuries apart from those caused by fire, it is better to give chloroform on the field, and this is kept up on the way back to the dressing station. Morphin should also be given, but it takes some time to act.

10. Acute Yellow Atrophy in Syphilis.—During the past two months McDonald has seen five typical cases of acute yellow atrophy in the postmortem room. In an experience of over 5,000 postmortem examinations performed since 1898 McDonald has only investigated one other case. The present series of five cases have all occurred in syphilitic subjects in the course of, or subsequent to, treatment by salvarsan preparations and mercury. In practically all the cases a full course of intravenous injections of salvarsan had been given, coupled with the usual intramuscular injections of mercury. In each case the diagnosis of syphilis was confirmed by a Wassermann test. These cases were not of undue severity, and showed no special symptom of importance till a sudden onset of jaundice was noticed, without at first any special disturbance, the disease suggesting nothing more than an ordinary catarrhal jaundice. At a varying period of from two to eight days, however, acute symptoms appeared with suddenness. They were ushered in by a period of wild excitement and increased icterus, with hematemesis. The patients rapidly passed into a condition of deep coma, and death occurred in the five patients at periods of one to four days from the onset of the acute symptoms. The urine was markedly bile stained, and in each patient showed tyrosin; in some leucin was also demonstrated. In four of the cases diminution in the size of the liver was demonstrated during life.

11. Pericardial Knock.—There is a sound heard on auscultation in cases of penetrating wounds of the chest near the cardiac region which is unlike anything met with in civil practice. It is of the nature of a click, and varies from a faint sound heard by careful auscultation, to a noise which may be compared to that heard in the ear piece of a telephone when the lever is moved up and down. It may be heard sometimes when standing at the foot of the patient's bed. Sometimes the patient is conscious of it, and on one occasion called Smith's attention to it. In nearly every case the sound disappeared after forty-eight hours, although in one patient who was recovering from a chest wound without any complications the sound persisted for ten days. The sound has been, as a rule, most marked near the apex beat. It is usually double, corresponding to the heart sounds, and its intensity waxes and wanes with respiration, sometimes disappearing completely in full expiration. A distinct fremitus can be felt by the hand laid on the chest. It has been suggested that the sound is due to emphysema of the connective tissue of the mediastinum. The usual disappearance of the sound after a short period, and the absence of serious symptoms in many cases, suggest that it may be due to air in the interstitial connective tissue of the lung which is struck on by the beats of the heart.

14. Gunshot Wounds Treated with Soap and Water.—The solution used by Haycraft has been of the strength 1 in 40. Pure sapo durus (1 part), obtained in blocks, is cut into shavings and dissolved in hot water (20 parts) which has been previously boiled. When required for use the solution is mixed with an equal volume of sterile water. Superficial wounds are completely excised and soap solution well rubbed into the surface; they are then stitched up. Single penetrating wounds: The skin wound is completely excised, the exposed surface of the wound in the muscle cut away, and the track of the missile laid thoroughly open. The wound being held widely open with retractors, the surface of the track is cut away all 'round, from the inside, with scissors until all damaged muscle, so far as it is visible to the naked eye, is removed. Foreign bodies, clothing, or any small, loose fragments of bone, are removed, all bleeding points ligatured, and the whole wound thoroughly swabbed out with soap solution. Muscles and fasciae are closed with catgut and the skin sutured. If the metal has passed almost through the thickness of a limb, it is removed by a counter incision and the wound converted into a seton wound.

Seton wounds: Both entrance and exit wounds are treated as above, and it is generally possible in this manner to expose and excise the whole track, one half from each incision. In cases in which this has been impossible for anatomic reasons the center of the track has been well rubbed with gauze and soap. If it only involved the division of a thin layer of muscle, the entrance and exit wounds were directly connected, laying open freely the whole track, which could then be dealt with. If there is gross loss of muscular tissue so that the ends cannot be approximated, or if a large dead space is left, the skin is sutured over the wound and a very small split rubber tube introduced for twenty-four to forty-eight hours. In cases in which it is difficult to approximate the skin edges without undue tension one or more incisions may be made down to the deep fascia parallel to and at some distance from the wound. This occurs most often in the forearm and lower part of the leg. Amputations have been completely stitched up with a very small split tube introduced into one corner for twenty-four hours. Penetrating wounds of knee-joints have been completely excised down to the synovial membrane, the joint well irrigated with soap solution, and the wound closed in layers. The effect of the soap solution on the wound appears to be hemostatic. Instruments, needles, etc., tend to become somewhat slippery—a slight disadvantage.

Out of a total of 98 cases in which the result was observed, 91 eventually healed and 7 failed altogether. Out of 38 cases of compound fracture, 33 eventually healed and 2 failed. A considerable proportion of cases healed dry without any discharge. A few cases became very swollen, red and shiny about the second day, simulating acute cellulitis. After a day or two the swelling began to subside, redness disappeared and the skin became crinkled, due to diminution of subcutaneous edema. Haycraft says that these cases may cause alarm at first, but it is rarely necessary to remove any stitches. In some cases in which the wound was gangrenous before operation a brownish discoloration appeared around the wound, and the part might even become tympanitic. On removal of one or two stitches gas and offensive discharge escaped, and the infection as a rule subsided.

Edinburgh Medical Journal

January, 1918, **20**, No. 1

16 Cerebrospinal Fever. P. W. Maclagan.—p. 3.
17 Two Child Welfare Schemes. G. H. G. Dundas.—p. 26.
18 Training of Student of Medicine. J. Mackenzie.—p. 31.
19 Teaching of Chemistry to Students of Medicine. J. Walker.—p. 48.

Medical Journal of Australia, Sydney

Jan. 5, 1918, **1**, No. 1

20 *Appearances of Lungs after Death from Asphyxia and Reasons. W. F. Litchfield.—p. 1.
21 Reeducation of Disabled Soldier. H. R. G. Poate.—p. 2.
22 Modern Treatment of Gonorrhea. L. E. Ellis.—p. 5.
23 Inguinal Colostomy. R. H. Russell.—p. 7.

20. **Appearances of Lungs after Death from Asphyxia.**—Litchfield says that after death from what might be called dry asphyxia, the lungs are light, dry and bloodless, while after death from drowning the lungs are heavy, wet and more or less engorged, although this wetness is not due to inspired water. Litchfield's hypothesis is that in dry asphyxia, the right heart fails before the left, and so the lung is sucked dry of blood, while in drowning the left heart fails before the right, with the result of engorgement and edema of the lungs. In dry asphyxia, owing to the negative pressure in the lungs, the dyspnea is predominantly inspiratory; blood is sucked into the thorax; the right heart becomes distended to the bursting point, and its function paralyzed; while the left heart is still able to beat. In drowning, when water on inspiration strikes the larynx and upper air passages, violent expiratory effort or coughing is induced, and the dyspnea becomes mainly expiratory, with the result that the right heart does not become so intensely gorged that it cannot beat, and in the meantime the left heart fails before the great increase of systemic arterial blood pressure, which is a constant feature in asphyxia.

National Medical Journal of China, Shanghai

December, 1917, **3**, No. 4

24 *Active Immunity to Systemic Plague Infection. F. Eberson.—p. 125.
25 Two-Stage Operation in Large Ovarian Cysts. W. B. Russell.—p. 140.
26 Parasitology of Dysentery. E. S. Tyau.—p. 142.
27 Value of Scientific Study of Botany to Chinese Medical Students. W. M. Porterfield, Jr.—p. 148.

24. **Active Immunity to Systemic Plague Infection.**—The close relationship of the phenomenon of antianaphylaxis and that of resistance to proteotoxins suggested to Eberson the feasibility of applying the facts concerning the former to a method involving apparently similar principles. He assumed that repeated injection of proteotoxin, if this contained specific substances of the plague organism, would give rise to an immunity toward plague itself. Experiments were made on animals. The treatment of rabbits with proteotoxins obtained with *B. pestis* confers a definite resistance on the part of the animal to systematically introduced plague organisms. The apparent immunity protects in at least 75 per cent. of the animals treated, taking the entire number of cases into consideration. Below a certain dose of bacteria, the protection conferred is much greater. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, in so far as it has been possible to determine it in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living, virulent plague. *B. pestis* appears to be the matrix for a specific poisonous substance analogous to proteotoxin, if not identical with it, and capable of inducing in the animal body a specific resistance to the organism which is used in the manufacture of the toxic element. Eberson's observations support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

Archives des Maladies du Cœur, etc., Paris

December, 1917, **10**, No. 12

28 *Functional Capacity of Right Heart. L. Calandre.—p. 561.
29 *Cardiovascular Disturbances in Typhus. D. Danielopolu.—p. 571.

28. **Sign of the Functional Capacity of the Right Heart.**—Calandre remarks that most of the tests applied to determine the functional capacity of the heart are addressed to the left side of the heart. By the time that the heart is dilated and there is cyanosis, the right heart is much damaged. One of the earliest evidences of insufficiency of the myocardium is the relaxing of that state of semicontraction which every sound muscle presents even in repose. Calandre has noticed that this early relaxing modifies the venous pulse in a certain way, as he shows by some typical tracings. In normal conditions the venous pulse shows three waves, the *a*, *c* and *v* waves. With a slow heart beat, during diastole, in addition to the three normal waves, the *a*, *c* and *v* waves, a fourth wave, Gibson's *h* wave, the *s* wave of different authors appears. This *s* wave appears between the last *v* wave and the commencement of the next revolution, that is, during the resting phase of the heart. When the heart is clinically sound this *s* wave is not modified by the respiration. With a myocardium that has lost some of its tonus this *s* wave does not appear when inspiration coincides with the resting phase of the heart, during which the *s* wave otherwise occurs.

29. **Cardiovascular Disturbances in Typhus.**—Danielopolu found that the myocardium and the suprarenals suffered more than any other organs in his experience with 500 cases of typhus in military and civilian circles in Roumania in 1917. Various forms of arrhythmia were common, and the arterial pressure was often abnormally low. He found most effectual treatment with strophanthin by the vein. Digitalis was much less reliable, and no benefit followed the use of camphor. Strophanthin has an undoubted cumulative action. He gives it in doses of two or three tenths of a milligram, repeated two or three times a day. In these small doses it has no diuretic action, and has to be supplemented with theobromin. He has given thousands of these injections with no mishap. He begins them at the first symptoms of myocardium insufficiency, and keeps them up until the normal rhythm is restored, lengthening the intervals. He used the drug made from the *Strophanthus gratus*. The low blood pressure was combated with epinephrin in comparatively large doses. Associated with strychnin, it gave good results in the intense and prolonged asthenia of toxic forms of the disease. The effect of the epinephrin was fleeting.

Archives de Médecine et de Pharmacie Militaires, Paris

May, 1917, **67**, No. 5

30 *Heliotherapy for War Wounds. A. Aimes.—613.
31 The Radiologic Services in the Army. A. Charlier.—p. 638.
32 *The Negatoscope. L. Bois.—p. 652.
33 Suture under Bacterial Control. G. Picot and R. Michel.—p. 657.
34 Conference of the Chiefs of the Dermato-Venereologic Centers. O. Pasteau.—p. 676.

30. **Heliotherapy for War Wounds.**—Aimes remarks that direct sunlight as an adjuvant in treating war wounds is seldom correctly utilized. Experience has confirmed beyond question the value of heliotherapy supplementary to operations, the relief of local pain and the general soothing influence, and the subsequent normal aspect and functioning of the muscles. It has materially hastened the healing of burns in his experience, but for this the rays must have direct access to the tissues. The exposures for heliotherapy should be direct and total, without interposition of gauze, glass, petrolatum or any fat salve. He insists that the whole body must be exposed in all forms of surgical tuberculosis. With nontuberculous affections, extensive regional exposures may suffice. The head should always be carefully protected with

a broad brimmed hat, an umbrella or hood over the head of the bed or litter. The body should be absolutely naked; if this is not possible, the region should be largely exposed, especially the glands in the region as they are actual reservoirs of bacilli. He begins very gradually, the first day exposing the feet alone, for five minutes at three sittings with at least an hour's interval. By the fifth day he is giving three exposures, the feet thirty minutes, the legs twenty, the thighs fifteen, the abdomen ten and the forearm five minutes. The thorax also is exposed for five minutes the seventh day, protecting the heart region. By the twelfth day three total exposures of an hour with only half an hour for the trunk and neck. After the third month the whole body can be exposed for several hours. With tuberculous bone lesions, immobilization is indispensable. Bivalve plaster casts are preferable and all casts should be carefully supervised. As the sun's rays are bactericidal, antiseptic dressings are seldom needed. Dry dressings or artificial serum are excellent. Wire netting to protect the wound while allowing its exposure to sun and air is often useful. Except in excessively smoky cities, heliotherapy can be applied anywhere, and in the aftercare of the wounded may render immense services.

32. **The Negatoscope.**—The apparatus here illustrated is arranged to show radiographic negatives at a glance. It is especially useful during an operation, the surgeon thus having before his eyes the radiographic findings.

Bulletin de l'Académie de Médecine, Paris

Dec. 29, 1917, **78**, No. 50

35 *The Bolting of Wheat Flour. E. Maurel.—p. 799.
36 Paratyphoid B Bacilli in Shellfish. G. Daumézon.—p. 806.
37 *Film Dressings for Burns. F. Fremiet and Pfulb.—p. 809.
38 *Gas Treatment of Scabies, etc., in Animals. T. A. Clayton.—p. 811.

35. **White and Whole Wheat Bread.**—Maurel presents testimony to show that whole wheat bread is not digested and assimilated as well as that made from the intermediate grade of wheat flour, bolted to 75 or 85 per cent. The whole wheat bread is useful to combat constipation. Flour bolted less than 70 per cent. is useful for persons with overexcitable digestive tract as it tends to constipate. Aside from these groups, and hence including the majority, the persons with normal digestion, bread made from flour bolted to 75 or 85 per cent. is the best utilized by the organism.

37. **Healing Under a Film Dressing.**—Fremiet and Pfulb state that in case of burns under a film dressing there is a continuous passage outward of leukocytes, traversing the granular tissue, while the film dressing forms a protecting barrier. The consequence is that the infectious processes are limited to the superficial layers and healing proceeds aseptically by the simple play of the normal defenses of the organism without the aid of antiseptics.

38. **Clayton's Gas Applied in Treatment of Scabies and Other Skin Diseases and Vermin in Man and Animals.**—See Paris Letter, p. 476.

Journal de Médecine de Bordeaux

December, 1917, **88**, No. 14

39 Criminal Abortion and Professional Secrecy. H. Berthélemy.—p. 291; Fieux.—p. 295.
40 *Subacute Melancholia in Soldiers. (Le cafard.) J. Caussimon.—p. 298.
41 *Sodium Sulphate. P. Carles.—p. 300.

40. **Subacute Melancholia.**—The soldiers call these attacks of a combination of grouch, worry and depression, the *cafard.* It is not neurasthenia nor psychasthenia; there is no neuralgia or rheumatism or heart disturbance, but vasomotor phenomena are common. This suggests that disturbance in the circulation in the brain or medulla from some vasomotor spasm may be responsible for this recurring form of the "blues."

41. **Test for Arsenic in Sodium Sulphate.**—Carles warns that when sodium sulphate forms a turbid solution with distilled water there is probably arsenic left in it. This can be revealed by adding 5 gm. of sulphuric acid and an equal amount of zinc to 100 gm. of distilled water. The vessel is then capped with a white filter paper cap. This piece of paper, about 4 or 5 inches in diameter, is moistened with a 1 per cent. solution of mercuric chlorid and dried before it is used. The edges of the paper are turned down over the neck of the bottle and it is held firm with a tumbler or salve box turned upside down or a piece of glass. If the paper is still white by the end of forty or fifty minutes, the reagents are certainly pure. Then about 25 gm. of the sodium sulphate is placed in the bottle and the whole agitated as it dissolves. If there is arsenic present, the paper will turn yellow and then brown, the depth of the tint proportional to the arsenic content. The discoloration is caused by the arsenated hydrogen formed by contact with the nascent hydrogen. Carles is confident that this test will be found useful for detecting minute amounts of the poison in various drugs. It reveals the arsenic even with as small a content as one hundredth of a milligram per cent. He found this test particularly useful in detecting arsenic in cream of tartar.

Lyon Chirurgical

September-October, 1917, **14**, No. 5

42 *Intracranial Foreign Bodies. C. Villandre.—p. 793.
43 *A Year After Trepanning. J. Murard.—p. 810.
44 *Hernia of the Brain. G. Aigrot.—p. 814.
45 *Fracture of the Jaw. P. Japiot.—p. 823.
46 *Paul's Tube for Colon Operations. C. G. Cumston.—p. 849.
47 *Secondary Resection of the Elbow. G. Leclerc.—p. 853.
48 *Bone Resection for Muscular Retraction. Thévenet.—p. 865.
49 *Ankylosis of the Elbow. Thevenet.—p. 871.
50 *Osteochondritis after Pleurotomy. Thevenet.—p. 877.
51 Postserum Tetanus. Jullen.—p. 879.
52 *Experimental and Clinical Grafting Operations. R. Ingebrigtsen.—p. 884; M. Le Jemtel.—p. 895; E. Greggio.—p. 898; Bonnefon.—p. 903; R. Leriche and A. Policard.—p. 916.

42. **Extraction of Metal Foreign Bodies in the Skull.**—Villandre relates experiences which show that even when a foreign body seems to be causing no disturbance, radioscopy may reveal an inflammatory reaction in the depths, an abscess developing slowly and silently. In all recent wounds he advocates removal of the foreign bodies as the routine procedure, and gives illustrations of the arrangement with the radioscopic screen which permits this with the greatest safety and ease. This is the only way to protect against serious damage later, as the serious features of the wound are not so much the trauma and the mechanical injury as the infectious germs carried with the foreign body inside the skull. We can accept the rule that every scrap of metal entering the brain may bring with it germs which may set up an early meningo-encephalitis or, after a phase of more or less prolonged tolerance, there may be an abscess in the brain. Its torpid evolution will certainly prove fatal in time unless arrested by an operation. He has had twenty-nine cases of these supposed "tolerated" projectiles in the brain. No operation was attempted in seven cases, but all the others except eleven required finally operative relief for fistula, abscess, or epilepsy. In the group of eleven in which an operation was performed on general principles, without signs of mischief, in three a deep abscess was found.

43. **Ultimate Outcome of Wounds of the Skull.**—Murard reports on forty patients trephined over a year ago for war wounds of the skull. Of the twenty-one men living after an interval of from twelve to sixteen months, four have resumed active duty and three light duty; ten still complain of headache and throbbing in the skull defect. This latter group might be improved by a cartilage graft to close the gap in the skull. One of the men still has a frontal fistula. Of the four who resumed active duty, two have been fatally wounded since and the third has been wounded anew. The military regulations now order that all men trephined for war wounds of the skull are to be discharged from the service. Pure sensory disturbances disappeared early and aphasia rapidly subsided in one case. Jacksonian epilepsy also subsided promptly, but motor disturbances from deficiency, paresis and paralysis, yielded very slowly and some are not entirely gone even yet. These disturbances seem to disappear from the root of the member toward the periphery, like a garment that is being pulled off. The muscles of the limbs take the longest to recuperate. Of the twenty regarded as cured, all have resumed active life.

44. **Hernia of the Brain.**—Aigrot is convinced that hernia of the brain after a recent war wound is always the work of an infectious process which induces meningitis or suppuration and the brain tissue is forced up. The aim in treatment should be to evacuate the cyst or abscess in the depths; this is all that is necessary. The brain will then subside spontaneously into place without the necessity for lumbar puncture or compression of the hernia tissue. He gives the details of ten typical cases out of forty in which the hernia followed a few days after the war wound had been supposedly cleared out within four or five hours of the injury.

45. **Radiography of Fractured Lower Jaw.**—Japiot gives the details of sixteen cases with several illustrations, discussing the interpretation of the roentgen findings. With a war wound of the jaw the teeth may be shattered and small fragments driven in various directions. They can be differentiated from metal fragments by the absence of vibration when the electrovibrator is applied to them. Metal scraps can be felt vibrating under the finger if they are magnetic. In some of the cases illusrated the line of fracture passed through teeth still standing in place. Other typical injuries are described and the indispensable importance of roentgenoscopy is emphasized. In old cases it may reveal the causes of persisting infection and fistulas or of nonunion. He has examined nearly 1,000 cases of fracture of the lower jaw, and describes the methods found most reliable for roentgenographic examination.

46. **Paul's Tube for Operations on the Colon.**—Cumston extols the advantages of Paul's technic and the use of his glass tube in colostomy and colectomy and for all operations on the bowel for ileus with diffuse peritonitis.

47. **Secondary Resection for Suppurating War Wounds of Joints.**—Leclerc's eighteen cases of operation on the elbow for septic arthritis following a war wound of the joint gave satisfactory results in fifteen cases; he was unable to save two of the men who succumbed to septicemia, and in a third case the arm had to be amputated. In eleven of the other cases the joint is stiff now, a year later, but in a good position; two have a flail joint left; one recovered almost complete use of the elbow and one actually complete restoration of function. The septic phenomena were arrested within ten days at most. In some of the cases arthrotomy had already been done without getting rid of the infection.

48. **Resection of Bone for Muscular Retraction.**—Thévenet describes two cases of cicatricial retraction of the muscles of the forearm or of the thumb in which he restored the use of the hand by resecting the whole wrist in the first and resecting the head of the first metacarpal bone in the second case. He gives the reasons for his selection of these operations on the skeleton, the outcome confirming the correctness of his premises.

49. **Ankylosis of the Elbow.**—Thévenet treated two men with complete bony ankylosis by secondary resection of the joint as he describes in detail. The functional results were excellent; nearly all the active movements of the joint were regained. In two other cases the ankylosis was of the fibrous type and he mobilized the joint under general anesthesia. Although it was done with great gentleness, infection flared up anew in each case. One of the men was then treated by resection, with fairly good functional results.

50. **Osteochondritis Following Pleurotomy.**—Thévenet reports a case of very serious and extensive serpiginous osteochondritis of the ribs consecutive to pleurotomy for purulent pleurisy at which one rib was resected. In the course of the two following years the man had to have nine operations performed on the ribs and costal cartilages but there has been no sign of further trouble since the last operation in May, 1917. The pleurisy was on the right side but the osteochondritis gradually involved both sides.

52. **Autoplastic Nerve Grafting.**—Ingebrigtsen operated on the ulnar nerve to release it from cicatricial pressure causing intense pain, fourteen months after a war wound of the arm. This relieved the pain for two months, when it returned. A second liberation of the nerve gave only transient relief, the pains then returning, with a tendency to paresis. A stretch of 4 cm. long of the nerve was then resected and the gap bridged with a stretch 8 cm. long taken from the internal superficial brachial nerve where it emerged from the axilla. This was cut in two; thus doubled, the nerve graft was sutured to bridge the gap in the ulnar nerve. It was sutured with silk greased with petrolatum, but the whole length of the graft lay in fibrous tissue, the sequels of the preceding injury and operations. The conditions were not favorable for recuperation, and the patient returned five months later with pains and paralysis, compelling the resection of the graft. The microscopic findings in the graft are reproduced. The case confirms that white petrolatum around the suture seems to prevent the development of adhesions. The old neuritis and the other conditions interfered with the success in this case. In his forty operations on peripheral nerves, a graft was found necessary only in four cases.

52. **Graft of Dog Sciatic Nerve.**—Le Jemtel relates that a young housemaid cut her wrist, severing the arteries and nerves as well as the tendons. After long suppuration the wound healed, but trophic disturbances developed like those of mal perforans. Gangrene seemed imminent but was warded off by bridging the gap in both the median and ulnar nerves with a strip, 12 cm. long, taken from the sciatic nerve of a dog, and cut across, each gap being thus bridged with a section 6 cm. long. During the suturing the field of operation was kept constantly irrigated with warm saline. No attempt was made to suture the retracted tendons. Within a few days the trophic disturbances subsided and approximately normal conditions were restored, as also in the sensory sphere, but the motor disturbance was not improved. A year later the hand was of nearly normal aspect but retracted in a claw shape. This permitted objects to be lifted, pushed, carried and even grasped, and a weight of 11 pounds could be lifted.

52. **Grafted Aponeurosis.**—Greggio presents a second communication on his successful grafts of aponeurosis tissue in dogs. When the animals were killed, from one to over two years afterward, the grafts were found fully vitalized and vascularized, with no signs of absorption or degeneracy.

52. **Grafts of the Cornea.**—Bonnefon declares that microscopic control of the fate of grafts is very discouraging as it shows that the graft is always substituted, regenerated. It loses its physiologic personality, all except the epithelial coat. This at least has been his experience with grafts of the cornea in animals. His six years of experimental work in this line have demonstrated that experimental grafts are successful because they are regenerated from the surrounding transparent cornea. Clinical grafts are not made on the sound cornea but on degenerated, cicatricial tissue and hence active regeneration cannot be depended on. All transplantation and grafting work must be based on the elementary biologic laws which govern survival and regeneration. These old biologic laws defy all the progress in technic.

52. **Fate of Cartilage Grafts.**—Leriche and Policard examined under the microscope scraps of cartilage which had been implanted to close a gap in the skull thirty-six days and nearly a year before. They found that the cartilage proper was substituted by connective tissue, only the connective tissue part of the graft retaining its vitality and personality. Their findings emphasize anew the importance of always retaining on the graft its peripheral coat, the periosteum or perichondrium.

Paris Médical

Dec. 22, 1917, 7, No. 51

53 *Hysteria as an Element in Contracture of the Hands. (Mains figées.) J. Boisseau and M. D'Oelsnitz.—p. 501.
54 *Swollen Calf after War Wound. R. Grégoire and Marsan.—p. 506.
55 *Spinal Anesthesia. H. Meuriot and O. Platon.—p. 508.
56 *Classification of Heart Disease. A. Leclercq.—p. 511.

53. **Contracture of the Hand Cured by Suggestion.**—Boisseau and D'Oelsnitz refer to cases of contracture or paralysis in soldiers with or without organic lesions. They have had 108 cases of the kind in which the contracture had lasted from one to eighteen months in 63 and from eighteen to thirty-six months in 45. The contracture was of the "accoucheur's hand" or the "priest blessing" type in many, and was usually

of a type that can be reproduced at will. These and other features of the cases convinced them that the motor element in the affection was of hysteric or—as they prefer to call it—of pithiatic origin and hence susceptible of being cured by psychotherapy. They prepared the men for the treatment by keeping them in a circle of already cured cases, thus impressing on them the possibility of a cure. Then the application of systematic psychotherapy resulted in a sudden and complete cure of the motor element in 71 cases; in 17 cases the cure was rapid and complete, while it took some time for the complete cure in 14 cases. The psychotherapy failed completely in only 6 cases, and in all these there was no concomitant organic lesion. Of course the long disuse of the muscles took longer before normal conditions were restored but the abrupt overcoming of the long contracture confirmed the pithiatic nature of the contracture or paralysis.

54. **Treatment of Swollen Calf after War Wounds.**—Grégoire describes a technic for releasing the muscles, especially the soleus, when the calf becomes hard and painful after a war wound of the leg. These "gros mollets," he says, have been the terror of surgeons during the war, but they are easily warded off by detaching the soleus from its points of attachment to the tibia, incising the muscle fibers close to the bone. This provides ample drainage and opens up the focus of fracture or gas gangrene.

55. **Spinal Anesthesia.**—Meuriot and Platon expatiate on the advantages of the spinal technic in operating on the legs and especially on the pelvis when the patient has to lie face downward. The war has led to the adoption of this technic more and more; Pauchet now has a record of over 2,000 operations done with spinal anesthesia, and they prefer the latter for all operations below the tenth pair of dorsal nerves. There is no vomiting with it, as they apply it, and no period of agitation as the patient rouses. The latter feature is particularly advantageous when a cast has to be applied and we have to wait for the plaster to set. Of course the anesthetic is a poison, and those whose liver and kidneys show that they are unable to counteract the toxic effect of the anesthetic should be excluded from spinal anesthesia. The wounded in war, however, are generally young and in good health, and hence evidence of toxic action from the anesthetic is very rare. They encountered it only in three of their 240 cases, and the manifestations were slight and transient. Two in this group of three were officers over 50, and the other showed signs of insufficiency on the part of the liver. In peace times, little attention was paid to insufficiency of the liver and kidneys as contraindicating spinal anesthesia and this explains the dissatisfaction with it. In operations on women soon after and during pregnancy and in persons over 50 the liver is apt to be below par. Even with the healthy young men of the army there are liable to be symptoms showing secondary excessive pressure (vertigo and headache) or indicating slight toxic action on the bulb (cold sweat, vomiting, syncope). But it is possible to ward off all this by care to withdraw enough of the cerebrospinal fluid to reduce the pressure. This may be estimated without an instrument of precision, but with the manometer it can be accurately determined, and the spinal anesthesia can proceed without fear of hypertension. They always make the injection with the patient seated, and they wait for three or four minutes before they let him recline, thus giving the anesthetic time to settle on the lower roots, and when he reclines they keep the head and shoulders raised on pillows to prevent diffusion of the drug to the brain. They always use the same solution, 0.07 gm. stovain in 2 c.c. of artificial serum, and draw 1 or 2 c.c. of the spinal fluid into the syringe and mix it well until the stovain acts on the albumin in the spinal fluid, as showed by slight turbidity.

56. **Classification of Heart Disease.**—Leclercq points out the simplification of indications in heart disease if we class the cases as those with cardiosclerosis, with cardio-arteritis, or with cardio-atheroma. Sclerosis of the heart and aorta indicates a grave outlook, with complications from hypertension and impermeability of the kidney. Treatment aims to aid in the elimination of toxins. In the cardio-arteritis group, the prognosis depends on the infectious cause responsible for the inflammation, mostly rheumatism or syphilis, and treatment should be directed to this cause and to the ultimate asystoly. In the atheroma cases, the prognosis depends on the slow poisoning of the system from lead, tobacco or alcohol, or on senile changes. Treatment here should be addressed to the poisoning or should be restricted to simplifying the diet and mode of life to conform to the reduced functional capacity of the heart and kidneys. This classification according to the physiopathology corresponds much better to clinical experience and desiderata than the classification of the textbooks, as it not only identifies etiologically, anatomically and clinically each case encountered, but furthermore indicates the proper treatment and lifts the curtain before the future.

Presse Médicale, Paris

Dec 17, 1917, 25, No. 70

57 *Exposure of Large Vessels in the Nates. J. Fiolle and J. Delmas.—p. 709.
58 *Endocarditis with Slow Course. R. Debré.—p. 710.
59 *Technic for the Wassermann Test. A. D. Ronchese.—p. 712.
60 *Early Mechanotherapy for the Wounded. J. Amieux.—p. 716.

Dec 20, 1917, 25, No. 71

61 *The Teratogenous Influence of Attempts at Abortion. Mme. N. Walbouchewitch.—p. 721.
62 *Cartilage Grafts for Skull Defects. G. Rouhier.—p. 722.

57. **Exposure of the Trunk Vessels in the Buttocks.**—Fiolle and Delmas comment on the difficulty of access to the gluteal, sciatic and internal pudic arteries owing to the size of the gluteus maximus. By a technic described with illustrations they show how it is possible to push this muscle to one side without cutting it. The incision in the skin runs from the center of the outer aspect of the greater trochanter, three fingerbreadths below its upper edge, straight up to this edge and 2 cm. above. Then it curves gently upward and inward, toward the posterior superior iliac spine, stopping 2 cm. short of it. The aponeurosis is then slit lengthwise along the outer margin of the greater trochanter, and the gluteus maximus is drawn aside and inward with a broad retractor. This leaves all the important vessels and nerves amply exposed to view.

58. **Slow Endocarditis.**—Debré discusses the differential diagnosis, stressing the insidious and progressive onset; the patient tires easily, grows pale and weak and has pains in the joints and periods of fever. Later there are eruptions or purpura, or there may be what seems to be a false felon on a finger, and the spleen becomes enlarged with phases of exacerbation and pain, and streptococci may be found in the blood. Periods of aggravation and remission of the symptoms alternate during months and the end comes suddenly from embolism. Sodium salicylate has no effect. Malignant endocarditis affects mostly children, while the slow form attacks adults. No benefit from any treatment to date has been recorded, but there is a possibility that specific serotherapy may yet offer better chances for success.

59. **Modified Technic for the Wassermann Test.**—Ronchese says that the technic he uses combines all the advantages of the nonheated serum with the precision of the heated serum technic. He uses an antihuman hemolytic system, with the proper dose of antihuman sensitizer calculated for the special complement. Tables giving comparative findings with other technics are appended to sustain his claims.

60. **Motor for Exercising the Legs in Bed.**—Amieux illustrates a simple motor of one-sixth horse power that serves for gentle graduated exercise of the legs before the wounded man is able to get up from bed.

61. **Congenital Deformity Traceable to Efforts for Abortion.**—Five cases are described in which healthy parents with one or more healthy children have had a child born with deformities of different kinds, or idiot or epileptic, and the mother confessed that she "did everything to arrest the pregnancy." The author asserts that the product of some toxic or traumatic procedure to induce abortion may be the first of a series transmitting the defects to the descendants. This chapter of pathologic histology of the embryo has been studied on animals but not in the human species to date.

62. **Cartilage Grafts for Skull Defects.**—Rouhier declares that the results have been constantly favorable to date in the thirty-four cases in which he has closed a gap in the skull with a graft taken from the costal cartilage, utilizing the broad sheet formed by the blending of the cartilages from the sixth rib downward. The graft is slightly concave on the under side, and he cuts out a wedge in the top center to insure a hinge-like adaptation of the graft to the curve of the skull. The article is illustrated. Local anesthesia is necessary. The graft heals in place in three weeks and the skull feels and looks solid.

Progrès Médical, Paris

Dec. 15, 1917, **32**, No. 50

63 *The Temperature, Pulse and Respiration Curve in the Gassed. P. Voivenel and P. Martin.—p. 433.
64 *The Chassis Dressing. A. Chalier and F. Benoist.—p. 436.

Dec. 22, 1917, **32**, No. 51

65 The Mental and Nervous Phenomena that Follow Shell and Other Shocks in War. H. Damaye.—p. 441.
66 Surgical Notes. A. Aimes.—p. 444.

Dec. 29, 1917, **32**, No. 52

67 *The Eye after Vaccination against Typhoid. E. Ginestous.—p. 449.
68 Suppurating Mediastinitis: Posterior Thoracotomy. J. Guyot and Cassard.—p. 450.

63. **Asphyxia from War Gases.**—Voivenel and Martin report extensive experience with three types of gases, and comment on the different types of reaction observed to their toxic effects at different times. The composition of the gas may differ, but the condition of the men, whether intensely exhausted or fresh at the time, has some effect in modifying the clinical picture. The triple curve of the temperature, the pulse and the respiration gave an almost identical chart in all the cases that terminated fatally. In the group of the more serious cases the charts were almost identical for all, while the charts in the mild cases had similar characteristic features. The treatment found most effectual was with subcutaneous injection of 0.05 gm. sodium cacodylate, or 0.05 gm. spartein sulphate or 0.001 gm. strychnin sulphate. The injections were kept up daily for a week. The benefit was prompt and pronounced, and kept up after treatment was suspended. The experiences related confirm the extraordinary susceptibility of the gassed to fatigue and chilling. Even changing from one room to another sent the temperature up. When the triple curve of temperature, pulse and respiration constantly rose, the men all died the first or second day.

64. **The Chassis Dressing.**—Chalier and Benoist call attention anew to their method of dressing wounds which offers a number of advantages. Two years of experience with it have convinced them more and more of its superiority. Four rolls of cotton are wrapped in gauze and laid around the wound without touching it. On this square elastic frame is placed a sheet of glass, flat or convex, and the whole is fastened in place with strips of gauze or adhesive plaster. Nothing touches the wounded tissues, while they are constantly open to the eye and the course of the lesion can thus be inspected from day to day, and the dressing changed without touching the wound proper.

67. **Eye Disturbances after Vaccination against Typhoid.**—Ginestous reports two cases in which vision declined after antityphoid vaccination and the men incriminated the vaccination. Further investigation, however, revealed preexisting albuminuric retinitis in one case and in the other toxic amblyopia from abuse of tobacco to which the man was not accustomed. A third case realized the possibility mentioned recently by several writers that the temperature reaction to the vaccination might induce a febrile herpes, and that this herpes might settle on the cornea. This was what occurred in this case; two days after the fourth injection double keratoconjunctivitis developed. In less than a month there were miliary abscesses in the right cornea and a large ulceration in the left cornea with perforation. The lesions healed leaving perfect vision in the right eye, but in the left there is central leukoma and vision is only 1:50. These herpetic complications are rare, but their connection with the antityphoid vaccination can be accepted, he says.

Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 13, 1917, **38**, No. 99

69 Preventive Vaccination. F. Pancrazio.—p. 1306.

Dec. 16, 1917, **38**, No. 100

70 *Projectiles in the Pleural Cavity. G. Ceresole.—p. 1315.
71 Trachoma in Italy. T. di Giuseppe.—p. 1316.
72 Medical Ethics during the War. E. Villa.—p. 1327.

70. **Projectiles in the Pleural Cavity.**—Ceresole comments on the difference in the symptoms with different shaped projectiles. When the missile has a rough or jagged surface it is liable to set up an aseptic inflammation with final encapsulation of the foreign body. Nothing of this kind occurs with a smooth aseptic foreign body in the pleural cavity.

Policlinico, Rome

Dec. 16, 1917, **24**, No. 51

73 Diseases with Convulsions in the Base Hospitals. F. Bonola.—p. 1481.
74 Keeping Count of the Sponges. (Apparecchio conta-pannilini.) L. de Gaetano.—p. 1487.
75 Prophylaxis of Malaria. M. Andreotti.—p. 1492.

Rivista de Clinica Pediatrica, Florence

December, 1917, **15**, No. 12

76 *Otitis Complicating Pleural Empyema in Children. L. Notari.—p. 617.

76. **Otitis with Pleural Empyema in Children.**—Notari has encountered seven cases of this kind, and has compiled statistics showing the relative frequency of otitis with infectious diseases in children. Smaniotto found evidences of suppurative otitis in 80 per cent. of the infant cadavers examined; Hassolauer, in 62 per cent. of the infants with infectious diseases; Teichmann in 50 per cent. of 268 children with disease of the respiratory apparatus; Rasch in 99 per cent. of children with pneumonia. Other figures confirm the great prevalence in the younger children. Notari found only five cases on record in which the otitis followed empyema. In these and in his own cases the otitis was always on the same side as the empyema. The germs probably are forced up into the ear by the mechanical impulse of coughing, sneezing or blowing the nose. It is possible that a badly managed nose douche might force air and germs with it up into the ear. The child lies generally on the diseased side even after the operation for the empyema, and this also favors the ascent of germs. His patients were three infants of from 12 to 25 months and four children from 3 to 7. All the children recovered after costotomy, and the discharge from the ear soon subsided in all. The staphylococcus was found in one case; the pneumococcus in five others.

Brazil-Medico, Rio de Janeiro

Nov. 27, 1917, **31**, No. 47

77 Venous Hypertrophic Cirrhosis of the Liver. C. Fonte.—p. 401.

Dec. 1, 1917, **31**, No. 48

78 *Rational Treatment of Yellow Fever. H. de B. Aragão.—p. 409.
79 Giant Big Toe. (Hallomegalia escaphoide.) A. F. de Magalhães.—p. 411.

78. **Yellow Fever and Epidemic Jaundice.**—Aragão expatiates on the many points of analogy between yellow fever and epidemic jaundice, and the frequent coexistence of the two diseases when the former was prevailing. The nervous system seems depressed in both and the heart weak; in yellow fever, death occurs commonly between the sixth and tenth day, in epidemic jaundice between the eighth and the sixteenth, although the mortality with the latter is small. In yellow fever the germ is not found in the blood after the third day, and consequently drugs to act effectually on it in the blood must be given within the first three days. The resemblance between yellow fever and infectious jaundice suggests that the treatment found effectual in the latter might cure yellow fever. Hence he advises salvarsan or its substitutes given in large doses during the first three days of yellow fever, never less than 50 or 60 cg. of salvarsan. By thus striking hard and promptly, the germs will be annihilated before the danger phase has been reached.

Gaceta Medica de Caracas

Oct. 15, 1917, 24, No. 19

80 Pituitary Extract in Obstetrics. Raretti.—p. 175.
81 *Forms of Leishmaniosis in Venezuela. G. Rincones.—p. 176.
82 Pyramidon by the Subcutaneous Route. A. Machado.—p. 177.
83 *Induced Pneumothorax. A. Larralde.—p. 179.
84 Sodium Cacodylate in Treatment of Amebic Dysentery. J. E. Montes.—p. 184. To be continued.

81. **Various Forms of Leishmaniosis in Venezuela.**—Rincones quotes Darling's statement that leishman granuloma seems to be restricted to those regions where there are laboratory facilities capable of detecting the leishman bodies. No case of ulcerating leishmaniosis has been reported to date in Venezuela, but it is possible that the leishman bodies may be responsible for certain cases of supposed rebellious malaria with enlargement of the spleen. In certain localities, Ortiz, for instance, a form of chronic ulcer is endemic, and it completely cripples a large proportion of the inhabitants. It is possible that intravenous injections of tartar emetic might ward off or cure these cutaneous lesions. He also suggests the possible leishman nature of another ulcerating lesion, generally on the face, started by the bite of the *pito*, a kind of beetle. Still another form of probable leishmaniosis encountered in Venezuela is similar to the espundea of Brazil; the lesions do not ulcerate.

83. **Induced Pneumothorax.**—Larralde reports that in eighteen of the sixty-eight cases in which he induced an artificial pneumothorax, the patients have been entirely free from symptoms of all kinds during the interval since, up to two and a half years in some. In another group of eighteen the improvement was marked and durable. In four cases no improvement was apparent; in thirteen it proved impossible to make the pneumothorax effectual, and in seven the conditions were found so grave that this method of treatment was abandoned. In eight cases nothwithstanding the improvement in certain areas the disease continued its course to a fatal termination. With no other measures would it have been possible to arrest thus the course of the disease in so many of these febrile progressing cases of acute tuberculosis with extensive infiltrations and cavities. His experience has convinced him more and more that, done cautiously the procedure is harmless while it is the most effectual measure at our disposal for treatment of pulmonary tuberculosis.

Semana Medica, Buenos Aires

Oct. 11, 1917, 24, No. 41

85 *Mountain Environment and the Brain. J. A. Lopez.—p. 407.
86 *The Charitable Institutions of Buenos Aires. E. R. Coni.—p. 412. Continuation.
87 Antiphagin Treatment of Tuberculosis. G. Escobar.—p. 424.

Oct. 18, 1917, 24, No. 42

88 *Development of Schoolchildren. L. R. Cassinelli.—p. 437.
89 *Tuberculin Treatment of Tuberculosis. A. Cetrangolo.—p. 442.
90 Color Reactions of Fluorene with Different Aldehyds. L. Guglialmelli. and A. Delmon.—p. 456.
91 *Tramps. E. M. Martinez.—p. 458.

85. **Influence of Rarefied Air on the Intelligence.**—Lopez made a number of tests on a troop of cavalry during a series of encampments among the Andes mountains. The highest camp was 3,672 meters above the level of the sea. The maximal and minimal blood pressure is tabulated, with other findings. The psychic functions, the intelligent response to various tests, showed no change from the average elsewhere, so that from a military point of view rarefied air does not affect the efficiency of the troops.

86. **The Charitable and Welfare Work Institutions of Buenos Aires.**—In these instalments of his long work on *Buenos Aires caritativo y previsor,* Coni describes the extensive provisions for foundlings, orphans and other wards of the state.

88. **The Development of the Schoolchild.**—Cassinelli is medical inspector for the National Board of Education, and he here relates some of his impressions from data collected during many years of this service. He noted for instance that on an average the children grew taller during the summer while the weight remained stationary; in the winter they increased in weight while there was comparatively little change in height. He gives a table showing the average height and weight of girls and boys, with various other measurements, especially the diameter from shoulder to shoulder and the anterior-posterior diameter. The figures given are the average of 10,000 Argentine children between 6 and 14. The girls weigh the most, and up to 13 are taller. The chest diameters are also constantly larger in the girls, but the spirometer tests gave much higher figures for the boys at 12 and over. The vital capacity as shown by the spirometer, was 800 c.c. (Barnes spirometer) at 6 and 3,000 at 14 among the boys, in the girls, from 820 to 2,500. Muscular strength as shown by the dynamometer gave 5.5 up to 29.26 for the boys from 6 to 14; for the girls, 5.5 to 22.22 at 14. He gives further the findings with the Binet tests at different ages showing the normal standards for the age. He protests against the practice common in Argentina of building huge expensive structures for schools without due provision for playgrounds, etc., urging that the "example of the great *Republica del Norte* be followed where a school can be founded in twenty-four hours as is done in New York, Chicago, Philadelphia, etc."

89. **Tuberculin Treatment of Tuberculosis.**—Cetrangolo is the physician in charge of the national sanatorium for the tuberculous, and his experience confirms the assumption that the tubercle bacilli entering the air passages usually locate first at the base of the lung, near the bronchi, and not at the apex. The right base is generally the site of the lesion, on account of the readier access, and the bacilli pass thence to the environing glands and slumber there until something happens to reduce the resisting powers. Then they sally forth to overcome the organism. The tuberculin reaction merely indicates that the bacilli have found lodgment in the body. What we need to know is whether the bacilli are getting the upper hand or not. This we can ascertain by Viton's method of therapeutic administration of tuberculin, as described in The Journal, March 24, 1917, p. 946. He gives minute doses and calls this the vaccine diagnosis and therapy of tuberculosis. Cetrangolo is convinced that tuberculin to be truly effectual must be given in very small doses. His patients do not do so well when the larger doses are reached. With the minute doses the indications for tuberculin treatment are enlarged. He gives five temperature charts showing the regulating effect on the temperature of these small doses at three or four day intervals. The dose he uses is a 1 per cent. dilution of No. 1 of the Denys-Dessy series.

91. **The Tramp from the Psychiatric Standpoint.**—Martinez is physician to the prisons of Granada, Spain, and he describes the three main types of vagabonds, the psychopathic, the degenerate with anomalies of various kinds, and the causal type, the latter including those tramping from lack of employment or emigrants, and the voluntary tramps.

Siglo Medico, Madrid

Nov. 24, 1917, 64, No. 3337

92 The Alleged Sleep Center. B. G. Alvarez.—p. 886.
93 Differentiation of Pneumonia and Appendicitis in Children. C. S. de los Terreros.—p. 887.
94 Cholelithiasis. S. Larregla.—p. 893.
95 Differentiation of Syphilitic Lesions and Herpes in Genital Region. Sicilia.—p. 896.

Dec. 1, 1917, 64, No. 3338

96 *Syphilitic Polyneuritis. E. M. Villapadierna.—p. 906.
97 Angina Pectoris. C. Calleja.—p. 910. Commenced in No. 3335, p. 849. See Abstract 92 on page 497.

96. **Syphilitic Polyneuritis.**—The pains, impotency and contracture in the legs had lasted for three years before the causal syphilis was recognized and improvement realized under treatment for syphilis.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 24, 1917, 2, No. 21

98 *State of Nourishment of Amsterdam Schoolchildren. J. Lubsen.—p. 1865.
99 *General Reduction in Weight. G. P. Frets.—p. 1880.
100 Change in Action of Ptyalin as it Ages. F. de Bruyne.—p. 1884.
101 Rapid Recovery from Bullet Wound in Lung. G. J. Colder and H. H. van der Meer.—p. 1888.

98. **Height and Weight of Amsterdam Children during the War.**—Lubsen relates that in January, 1916, the weight and height of 3,680 schoolchildren at Amsterdam were recorded,

but as there was no previous record of the kind, no comparisons were possible except with children of other countries. In January, 1917, the height and weight of a larger group, 5,064 schoolchildren, were recorded and the averages compared with those of the previous year. The data are tabulated from various points of view. They show that there has been no appreciable change in the average height and weight during this period of high war prices and consequent danger of undernourishment. One fact brought out by these data is that the children of the well-to-do are taller and weigh more when they first enter school. After the age when they first enter school the children of the poor and of the well-to-do classes all grow proportionately about the same. The poorer children in question all get one or more warm meals daily. They were supplied at first by a charity organization but later it became a municipal institution. Lubsen emphasizes the importance of the fact here brought into the limelight, namely, that the period in which the evil effects of inadequate nourishment on the growth are most pernicious is the period of early childhood, below school age. This fact should be borne in mind in estimating the damage from the restrictions entailed by the world war. He cites a number of reports on similar investigations conducted in Germany in the last two years. They show an unmistakable influence from the change in the diet although at first it seemed to be merely the using up of the reserves of fat. All the writers insist, however, that the German children look well and lively. In their appearance there is nothing to suggest undernourishment, and Lubsen quotes Chittenden's statements in regard to the physiologic adaptation to a reduction in food during the period of growth.

99. **Prevalent Loss of Weight from Undernourishment.**—As a contribution to the subject of the influence on the public health of the prevailing scarcity and high prices of food, Frets gives the figures of the weight, month by month, of 103 inmates of an asylum for chronic diseases. Many of them were able to be up and about all day and do useful work. The figures show for 1915 an increase in weight of 77.5 kilograms for the whole group. In 1916 the whole group lost 117 kilograms. In the first nine months of 1917 there was a total loss for the group of 390 kilograms. This is a loss of about 3.9 kilograms per capita since the introduction of the bread card.

Hospitalstidende, Copenhagen

Nov. 28, 1917, **60**, No. 48

102 *Precocious Puberty. K. H. Krabbe.—p. 1165.

102. **Precocious Puberty.**—Krabbe describes the case of an imbecile male child about a year old with virile development of the genitals, frequent erections and a tendency to tetany. By exclusion, the assumption of hyperplasia of the suprarenal cortex seems justified as the explanation of the anomalies in this child. Krabbe has found records of over 130 cases of precocious puberty on record. In those that came to necropsy a tumor was found in the ovaries in 4; in the testes in one; a tumor in the suprarenals in 4 boys and 6 girls; in the pineal body in 5 boys and 1 girl, and hydrocephalus in 1 case. In the total number, 48 were boys and 87 girls. Only 4 cases are known in Scandinavian literature, all but one in boys from 4 to 14. The one girl seemed to have a tumor in the pineal body, but no cause for the premature puberty in the boys could be discovered. Krabbe thinks that tumors in the pineal body and suprarenals probably cause the production of certain metabolic substances which have a stimulating action on the interstitial cells of the testicles and ovaries. But this occurs only in these pathologic conditions; the normal suprarenals and pineal body probably have no special function in this respect.

Hygiea, Stockholm

Nov. 30, 1917, **79**, No. 22

103 *Albuminuria with Jaundice. A. Höjer.—p. 1201.
104 *Alternating Irrigation of the Ear. M. Alfelt.—p. 1207.

103. **Albuminuria with Jaundice.**—*Höjer* disputes the generally accepted opinion that the albuminuria with jaundice is the result of the passage of bile elements into the blood. He contends that the same noxious influence responsible for the jaundice has probably acted also on the kidneys, and the albuminuria is the result of this simultaneous damage of the kidneys.

104. **Alternating Hot and Cold Ear Douches.**—Alfelt gives the details of five cases to show the benefit liable from these contrast douches in certain ear affections, catarrh with adhesions, otosclerosis and nervous deafness with or without subjective symptoms or arteriosclerosis. The hearing was more or less improved in some of the cases but the tinnitus was not modified. He rinsed the ear out first with 100 c.c. of warm water at about 42 C. (107 F.) following this at once with 5 or 10 c.c. cold water drawn directly from the hydrant. This was kept up, alternating the warm and cold water, until about a liter of the warm water had been used. The series was concluded with the warm water. The ear was then carefully dried and a cotton pledget worn for an hour. The sitting was repeated daily for four or six weeks. Sometimes fewer sittings were required. In one case of chronic adhesive catarrh in a woman of 49 with nervous deafness the stimulating influence on the cochlea was so pronounced that in three weeks the hearing had much improved, bone conduction increased, and the range of tones heard was extended both up and down, while the Rinne test kept negative. In a woman of 43 with familial otosclerosis, the hearing was materially improved in the course of three weeks and bone conduction increased. The limit for the lower tones was improved and for high tones became nearly normal. The drum membranes are normal. In one man of 60 with nervous deafness and arteriosclerosis the hearing improved a little and bone conduction became normal. In all these cases the tinnitus persisted unmodified.

Ugeskrift for Læger, Copenhagen

Dec. 6, 1917, **79**, No. 49

105 *Bladder Tumors. N. Falbing.—p. 1937.
106 *Obstetric Arm and Leg Holders. H. Wulff.—p. 1944.

Dec. 13, 1917, **79**, No. 50

107 *Treatment of Abortion. S. A. Gammeltoft.—p. 1977.

105. **Electrocoagulation of Bladder Tumors.**—*Falbing's* experience with two cases reported here in detail confirms the advantages of application of the high frequency current in cases of nonmalignant papillomas and other tumors of the bladder. One of his patients was a woman of 73. No anesthetic was required and the bladder has behaved and looked absolutely normal during the three years to date. "Bladder papillomas are so liable to become malignant that it is as if the bearer were carrying dynamite around with him. With the high frequency current the papilloma can be obliterated as effectually as by excision while the electric treatment is simple and harmless." He hails it as a most valuable acquisition.

106. **Leg Holder for Parturients.**—A strap passing behind the neck buckles to broad wristlets and thus the arms are held up on a level with the shoulder, although the hands can be freely moved around within this range. Another strap passing over one shoulder and under the other arm buckles to two long bags which fit over foot and leg, and hold the leg flexed at the knee and thigh. Although held firmly there is no appreciable constraint as arms and legs can be moved freely within a certain range as the woman lies with the buttocks at the edge of the table or bed.

107. **Treatment of Abortion.**—Gammeltoft tabulates the details of 337 abortion cases and the outcome under the various measures applied—all in the Bispebjærg public hospital. He admits that abortion can be managed more expectantly in an institution than in the home. The principle is accepted that the uterus must be cleared out with all incomplete abortions, and the abortion curet is the best means for this purpose. With abortion under way in the first months of pregnancy, active treatment is practicable and is indicated if the patient is febrile or bleeding. With abortion after the twelfth week, it is best to strive for a spontaneous course. If intervention is indispensable, he seeks to get the cervical canal dilated to the extreme possible to attain at this stage. With disease in the ovaries or tubes, expectancy carried to its farthest extreme should be the rule.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 70, No. 9 Chicago, Illinois March 2, 1918

URINARY ANTISEPSIS

A STUDY OF THE ANTISEPTIC PROPERTIES AND THE RENAL EXCRETION OF COMPOUNDS RELATED TO PHENOLSULPHONEPHTHALEIN: PRELIMINARY REPORT *

EDWIN G. DAVIS, M.D.
Resident Urologist, Johns Hopkins Hospital
BALTIMORE

The ideal internal urinary antiseptic must be a drug which is chemically stable, nontoxic, and nonirritating to the lower urinary tract; which is antiseptic in high dilution (in urine, as well as in water), and which is eliminated unchanged in high percentage by the kidney. There is no such drug known. A consideration of the properties possessed by phenolsulphonephthalein, however, shows that this compound comes very close to filling all these requirements. Phenolsulphonephthalein is chemically stable, nontoxic and nonirritating, and is eliminated by the kidney with incredible rapidity and completeness; but it has no antiseptic properties, excepting in water in its free acid form. (Clinically it is used as the monosodium salt.) This remarkable compound, synthesized in 1898 by Sohon,[1] at Remsen's[2] suggestion, investigated later in Abel's[3] laboratory, and introduced into clinical use by Rowntree and Geraghty[4] twelve years later, has become the basis of the most widely used and the most satisfactory of all the tests of renal function. This is due to the remarkable rapidity and completeness with which phenolsulphonephthalein is eliminated by the kidney, and to its nontoxicity, and to the ease with which it lends itself to colorimetric estimation. As evidence of nontoxicity, Rowntree and Geraghty have given 1 gram doses to dogs without evidence of renal injury. Its marvelous rapidity and completeness of elimination is realized when one considers that a 6 mg. dose, given intravenously, and therefore diluted about a million times by the blood stream, appears in the bladder in about two minutes; and, after one hour, from 60 to 70 per cent. has been excreted by the normal kidney. Furthermore, about 30 or 35 per cent. of this amount appears during the first fifteen minutes, and about 40 or 50 per cent. during the first half hour. In view of these remarkable properties, it was thought worth while to attempt a modification of the phenolsulphonephthalein molecule, with the hope that an antiseptic compound might be produced which still retained the properties of the original drug. As the problem gradually increased in scope, it was found advisable to investigate a large number of compounds distantly related to phenolsulphonephthalein, as well as those closely related. The total number of compounds experimented with at present is about 195, the antiseptic properties of which will be enumerated in subsequent publications. This is a preliminary report dealing only with compounds closely related to phenolsulphonephthalein.

These compounds were not easily obtained. The original few were supplied by Mr. H. A. B. Dunning of Hynson, Westcott and Dunning, and by Clark and Lubs of the Bureau of Animal Industry, Washington. Other compounds, made and donated through the courtesy of Dr. J. H. Sachs of the Graduate Department of Chemistry, Johns Hopkins University, and still others, obtained here and there from various sources, supplied sufficient material for the first few months of investigation, and gave very interesting results. During the past year, however, the work has been carried out, and is at present being continued, with the collaboration of Dr. E. C. White, chemist in the Brady Urological Institute. A more detailed report, including tables of antiseptic values and rates of excretion, and with discussion of the chemical phases, will shortly be published as a joint article.

Although the literature contains no record of any attempt to synthesize an internal urinary antiseptic, various workers (following the pioneer work of Ehrlich in chemotherapy) during recent years have attempted to correlate chemical structure and physiologic action, and thus produce compounds with a desired specific therapeutic action. It is not my purpose to discuss this literature. For an excellent summary of recent work done along the lines of chemotherapy, the reader is referred to publications of Lewis.[5] The problem which Lewis and his co-worker, Krauss,[6] are investigating is analogous to the problem on urinary antisepsis outlined above, in that they started with a dye (trypan red) which possesses the peculiar property of becoming localized in the caseous centers of tuberculous masses, and experimented with numerous modifications of this compound, with the hope that one might be produced that would inhibit the development of the tubercle bacillus, and still retain the localizing tendency of the original compound.

---

* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital.

[1] Sohon, M. D.: An Investigation of Some Derivatives of Orthosulfobenzoic Anhydride, Am. Chem. Jour., 1898, **20**, 257.

[2] Remsen, I.: On a New Class of Compounds Analogous to the Phthaleins, Am. Chem. Jour., 1884, **6**, 180.

[3] Abel, J. J., and Rowntree, L. G.: On the Pharmacological Action of Some Phthaleins and their Derivatives, with Especial Reference to their Behavior as Purgatives, Jour. Pharmacol. and Exper. Therap., 1909, **1**, 231.

[4] Rowntree, L. G., and Geraghty, J. T.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by Means of Phenolsulphonephthalein, Jour. Pharmacol. and Exper. Therap., 1909, **1**, 579.

[5] Lewis, P. A.: Observations Bearing on the Possibility of Developing an Experimental Chemotherapy of Tuberculosis, Bull. Johns Hopkins Hosp., 1917, **28**, 120; Chemotherapy in Tuberculosis, Am. Jour. Med. Sc., 1917, **153**, 625.

[6] Krauss, R. B.: The Preparation of Compounds of Trypan Red with Iodin and Other Substances, Jour. Am. Chem. Soc., 1914, **36**, 961.

Limited space does not permit a discussion of the so-called urinary antiseptics in present use, and of the great need of a really efficient drug for this purpose, which may be given either intravenously or by mouth and which will cause an inhibition of bacterial development in the urine, regardless of the reaction of the latter. For a complete summary of this phase of the subject, and a discussion of the relative values of the various urinary antiseptics in common use, the reader is referred to the paper published by Hinman[7] in 1915. This paper will be freely quoted. Of the urinary antiseptics in common use, hexamethylenamin is by far the best, but has very definite limitations, owing mainly to the fact that an acid medium is essential for the liberation of formaldehyd. Furthermore, "the necessity of concentration, and time for the accumulation of formaldehyd in antiseptic amounts, largely destroys the value of the drug for kidney antisepsis; for bladder antisepsis in cases with polyuria or frequent urination, except when retention in some form is present; in cases of urinary fistula, notably postoperative prostatics during the period of incontinence, and in cases with continual bladder drainage as in true incontinence or with retention catheter; and for urethral antisepsis no matter what the infection. The greatest usefulness of hexamethylenamin is in bladder prophylaxis in cases in which the above urinary conditions are not present. . . . Methylene blue, in a dilution of 1 : 150,000, will inhibit the growth of staphylococci," and would therefore seem of value in this type of infection; but there has been no experimental work showing that methylene blue does not undergo modification either in the blood stream or in the urine so as to lose its antiseptic value, which will be shown below to be the case with many other compounds. Hinman states that "the value as internal urinary antiseptics of other substances such as salol, oil of sandalwood, salicylic, boric and benzoic acids, is very limited," and concludes that there is no known drug with properties even approaching those of an ideal urinary antiseptic.

As stated before, an ideal internal urinary antiseptic must be chemically stable, nontoxic, antiseptic in urine (as well as in water), and must, like phenolsulphonephthalein, possess the property of high-percentage elimination. Possibly a compound not entirely nontoxic, but relatively so, might be suitable for the purpose. Provided the renal elimination of a given compound is sufficiently rapid and complete, and that this compound causes bacterial inhibition in urine in sufficiently high dilution, it is conceivable that small doses might serve to produce urinary antisepsis, even though the compound is moderately toxic. In view of the general toxic effects on the animal organism that an antiseptic compound may be expected to have, and the possibility of injury to the renal epithelium and of irritating effects on the lower urinary tract, one realizes the hopelessness of the problem if the synthesis of a completely harmless urinary antiseptic is the goal. The matter then resolves itself into a question of relative toxicity; that is, the attainment of a compound combining minimum toxicity with maximum efficiency, so that small but effective doses may be safely used.

METHODS OF INJECTION

Each compound was investigated with two objects in view; first, to determine the rate of elimination by the kidney, and second, to determine the antiseptic properties. Rabbits were used for injection purposes because (1) they are easily available and cared for in large numbers; (2) the ear vein is easily injected, and (3) the urethra of the male rabbit is large and easily catheterized. The drugs were injected intravenously in 10 mg. amounts in 1 per cent. solution, and the rabbits catheterized after one hour. In the case of each drug a colorimetric estimation of percentage of excretion was made with the Hellige colorimeter, 10 mg. of the drug diluted in 1,000 c.c. of water being used as a standard. In order to make certain that the total excretion for one hour was quantitatively recovered, the bladders of the rabbits were irrigated after catheterization, and the irrigation added to the urine obtained through the catheter. The percentage of excretion of each compound was estimated by averaging the results of at least two injections on different rabbits. It would have been impossible to determine the rate of excretion of such a large number of compounds had it not been that nearly all of them were highly colored and hence readily detected in the urine. Colorless compounds were rejected, excepting a few in which the antiseptic tests were unusually promising.

BACTERIOLOGIC TECHNIC

Antisepsis in urine is quite a different thing from antisepsis in water. As will be shown further on and in subsequent papers, there are numerous compounds which are germicidal in high dilution in water, but which lose this property entirely when diluted in urine, and which even permit the growth of organisms in urine when in relatively strong concentration. This astonishing fact has proved to be a great obstacle. It may be readily seen that the compound, the antiseptic power of which is due to its acid or basic properties, would become inert in urine on account of the buffer[8] value of the urinary salts. Other compounds, containing ionic silver, become inert in urine because the silver is precipitated by the chlorids. There remain, however, a large number of drugs whose loss of antiseptic strength in urine is due to some unknown interfering action, the nature of which is as yet undetermined. It must not be understood that this loss of antiseptic power in urine is noted after the compound has been passed through the animal body, but it occurs when urine is added to the aqueous solution of the compound in a test tube. For this reason it became necessary to carry on parallel germicidal tests both in urine and in water.

The colon bacillus was used throughout the experiments because it is the most frequent invader of the urinary tract, and because it is resistant to antiseptics, and is readily cultivated. Investigations with other organisms are to be carried on in the future. Each compound was studied with the view of determining (1) its germicidal properties (in water and in urine) and (2) its antiseptic or inhibitory properties in urine.

1. *Germicidal Test.*—In order to rule out a large number of undesirable compounds, it was necessary to establish an arbitrary standard of germicidal strength, and compare them all with phenol (carbolic acid). The arbitrary method chosen was the determination of the highest dilution of each compound which, in

---

[7] Hinman, Frank: Urinary Antisepsis: A Clinical and Bacteriologic Study, The Journal A. M. A., Nov. 20, 1915, p. 1769.

[8] The term "buffer" action refers to the ability of mixtures of certain acid and alkaline salts in solution to maintain a practically constant hydrogen ion concentration, in spite of the addition of moderate amounts of acid or alkali. For detailed discussion, see publications of Henderson and Palmer, Clark and Lubs, and Shohl and Janney.

1 c.c. amount, will kill one loop (3 mm. internal diameter) of a twenty-four-hour broth culture of the colon bacillus, in one hour, at 37 C. Dilutions of the drug were made with sterile pipets in sterile test tubes, and all but 1 c.c. of each dilution was discarded. After the inoculation of each dilution with one loop of colon bacilli, and incubation for one hour, 0.1 c.c. of each dilution was transfered to melted agar, and plated. In transfering these 0.1 c.c. amounts, it was found convenient to use capillary pipets drawn out (from 3 mm. glass tubing) long enough to reach the bottom of the test tubes. By connecting the large end of one of these capillary tubes to a carefully calibrated small syringe (by means of a small rubber tip), it was found that 0.1 c.c. amounts could be drawn up with remarkable accuracy, irrespective of variations in the size of the capillary tubes. These tubes were used over and over again, large numbers being sterilized together by means of dry heat.

Parallel tests were run for each compound, sterile water being used for one series of dilutions and sterile urine for the other. It was found to be unnecessary to adopt any method of sterilizing the urine to be used for this purpose. Agar plates poured each day containing 0.1 c.c. of urine taken from a specimen voided in a sterile (second) flask by a normal individual were uniformly sterile. The factor of possible error due to modification of the urine through the process of sterilization was thus eliminated. For example, sterilization of urine by heat produces a marked change in the hydrogen ion concentration, the urine becoming much more alkaline.

The effect of the reaction of the urine in aiding or hindering the germicidal activity of a drug is an all-important factor. Henderson and Palmer[9] have shown that the hydrogen ion concentration of urine is normally subject to a considerable range of variation (p_H 4.8 to p_H 7.4), and that the average of this range is p_H 6.0 on the hydrogen ion scale, corresponding to 0.000001 N acid.[10] The importance of the reaction of urine when used as a culture medium has been pointed out by Shohl and Janney, who find that the colon bacillus fails to grow in urine at certain definite acid (p_H 4.8) and alkaline (p_H 9.2) end-points. In order to eliminate possible error, due to strongly acid or alkaline urine, the hydrogen ion concentration of each specimen of urine to be used for antiseptic experiments was determined, and the specimen rejected if the reaction was not approximately that of average normal urine, that is, p_H 6.0.

2. *Antiseptic Test.*—More important than the determination of the germicidal strength of these compounds was the determination of the highest dilution of each in urine that will cause an inhibition of bacterial development. For this, dilutions in urine were made in 10 c.c. amounts, sterile test tubes being used. Each tube was inoculated (as in the germicidal test) with one standard loop of a twenty-four-hour broth culture of the colon bacillus, immediately after which 0.1 c.c. of each inoculated dilution was plated, as proof that the inoculation had been made, and for the purpose of comparison with a second plate which was poured (0.1 c.c. again being transferred) after the inoculated dilutions had been incubated for twenty-four hours at 37 C. The contrasting of these two plates, poured at twenty-four hour intervals, showed whether or not growth had taken place during the incubation period. The first plate (poured immediately after inoculation) usually showed about 10,000 colonies, roughly estimated. A second (twenty-four hour) plate which was sterile or which contained very few colonies (less than 100) was considered proof of inhibition, while a plate showing countless numbers of colonies proved the absence of inhibition. In the vast majority of instances the contrast between Plates 1 and 2 was so marked that there could be no possible doubt. A daily control of inoculated drug-free urine invariably contained countless numbers of colonies in the second (twenty-four hour) plate, showing that normal urine acts as a favorable culture medium for the colon bacillus.

PHENOLSULPHONEPHTHALEIN AND SALTS

The properties of phenolsulphonephthalein itself, and of some of its metallic salts (sodium, silver, copper, mercury and barium), as illustrated in the structural formula given in Figure 1, were first investigated. Phenolsulphonephthalein, in its free acid form, although almost insoluble, is nevertheless germicidal (against the colon bacillus, according to the arbitrary standard described above) in a dilution of 1:10,000; that is, it has about fifty times the strength of phenol. In urine, however, even in almost saturated solution, phenolsulphonephthalein permits the growth and development of the colon bacillus. A suggested explanation of this loss of power is that the watery solution kills by virtue of its acidity whereas in urine the acid properties are lost on account of the buffer value of the urinary salts. Furthermore, the monosodium salt, the form used clinically, has no germicidal action even in water, and in urine permits the growth of the colon bacillus even in a 1:200 dilution. The silver salt is extremely germicidal in water (having 5,000 times the strength of phenol), but in urine the silver is precipitated by the chlorids, and the germicidal strength, due to the silver ion, is lost. The germicidal properties of the silver salt of phenolsulphonephthalein, both in water and in urine, correspond very closely to those of silver nitrate. The fact that the chlorids are responsible is shown by a similar disappearance of germicidal action when the dilutions are made in physiologic sodium chlorid solution. Furthermore, when the silver salt is injected intravenously, the ionic silver is lost in the body, and the phenolsulphonephthalein appears in the urine free from silver, probably as the sodium salt. Mercurous and mercuric salts and the cupric salt, although having some germicidal value in urine, were discarded because of their toxicity. The barium salt was quite inert.

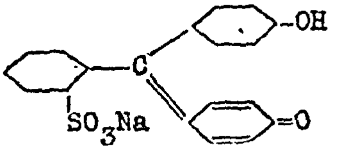


Fig. 1. — Phenolsulphonephthalein (monosodium salt).

Conclusion.—The metallic salts of phenolsulphonephthalein give no promise of value as urinary antiseptics.

SULPHONEPHTHALEINS

The compounds listed in the accompanying table are all analogous to phenolsulphonephthalein, differing from the latter compound only by the presence of various substituent groups in the phenol nucleus. All of these compounds excepting two are practically insoluble in water, as the free acid, but are readily soluble in the form of the sodium salt. Pyrocatechinsulphonephthalein and guaiacolsulphonephthalein, however, are soluble in water *without the addition of alkali*. Some of these compounds are quite germicidal in water (possibly owing to excess alkali necessary to bring them into solution); but, with the exception of [illegible] *only, it is a uniform rule that they lose this action* [illegible] diluted in urine. Pyrocatechinsulphonephthalein, [illegible]y one to retain its value, is germicidal in urine [illegible] a dilution of 1:500, and *inhibitory* in urine in a dilution of 1:1,000.

---

[9] Henderson, L. J., and Palmer, W. W.: On the Intensity of Urinary Acidity in Normal and Pathological Conditoins, Jour. Biol. Chem., 1913, 13, 393.

[10] For discussions concerning the hydrogen ion concentration of urine, and the technic for colorimetric estimation, see publications of Henderson and Palmer, Clark and Lubs, and Shohl and Janney.

Very surprising results were obtained by the injection *of these compounds. Although they are all quite* closely related chemically, *some of them are eliminated by the kidney with the same marvelous rapidity and* completeness with which phenolsulphonephthalein is eliminated, *while others appear in the urine only in traces or not at all. The excretion seems to be governed by no rule. With this class of compounds, no* definite relationship between chemical structure and "renal affinity" could be established. The addition of methyl groups to the phenol nucleus (cresolsulphonephthalein) certainly does not interfere with excretion, while excretion is prevented by isopropyl, amino and carboxyl groups, as shown by thymolsulphonephthalein, aminosulphonephthalein and salicylsulphonephthalein.

THE EXCRETION AND THE ANTISEPTIC PROPERTIES OF THE SULPHONEPHTHALEINS

Name	Antiseptic Strength				Excretion Percentage After One Hour
	In Water		In Urine		
	Kills in One Hour	Fails in One Hour	Inhibits Development	Permits Growth	
Phenolsulphonephthalein.......	....	1:200	....	1:200	70
Thymolsulphonephthalein......	1:200	1:1 000	....	1:200	Trace
Salicylsulphonephthalein........	....	1:200	....	1:200	Trace
Hydrochinonsulphonephthalein	....	1:200	....	1:200	40
Cresolsulphonephthalein........	....	1:200	....	1:200	70
Tetra-aminophenolsulphonephthalein	1:200	1:1,000	1:200	1:500	0
Alphanaphtholsulphonephthalein	1:200	1:1,000	....	1:200	Unstable
Orcinsulphonephthalein.........	....	1:200	....	1:200	70
Pyrocatechinsulphonephthalein	1:2,000	1:5.000	1:1,000	1:2,000	0
Tetranitrophenolsulphonephthalein	....	1:200	....	1:200	Hemoglobinuria
Guaiacolsulphonephthalein.....	1:200	1:1.000	....	1:200	Trace
Resorcinsulphonephthalein......	....	1:200	....	1:200	75
Pyrogallolsulphonephthalein...	....	1:200	....	1:200	30
Phenol........................	1:180	1:220	1:900	1:1,000	

The most interesting and disappointing feature shown by the sulphonephthaleins is the effect of the addition of OH groups to the phenol nucleus. Pyrogallolsulphonephthalein, hydrochinonsulphonephthalein and *pyrocatechinsulphonephthalein* are all hydroxy derivatives, differing only in the number and position of the OH groups, and, of these, the pyrogallol and hydrochinon compounds are excreted, whereas pyrocatechinsulphonephthalein, the only sulphonephthalein shown to be antiseptic in urine, unfortunately, is also the only one not excreted.

Conclusions.—1. Several other sulphonephthaleins are excreted by the kidney with great rapidity, just as is phenolsulphonephthalein.

2. None of the sulphonephthaleins investigated would be of value as urinary antiseptics, since the only one showing antiseptic strength in urine fails to be excreted.

HALOGEN DERIVATIVES OF SULPHONEPHTHALEINS

To illustrate the chemical structure of the halogen derivatives of sulphonephthaleins investigated, the structural formula (Fig. 2) is given. Those investigated were tetrabromphenolsulphonephthalein, tetrachlorphenolsulphonephthalein, di-iodophenolsulphonephthalein, dibromcresolsulphonephthalein and dibromthymolsulphonephthalein. These compounds, all used in the form of the sodium salt, show moderate germicidal ability in water, probably owing to excess alkali necessary to bring them into solution; but they all become inert in urine. Furthermore, none of them excepting tetrachlorphenolsulphonephthalein are excreted, and we therefore have in compounds of this class a definite relationship between chemical structure and "renal affinity."

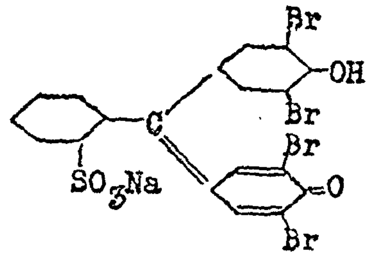


Fig. 2.—Tetrabromphenolsulphonephthalein (monosodium salt).

Conclusions.—1. Substitution of bromin in compounds of the sulphonephthalein type prevents excretion by the kidney.

2. Halogenated sulphonephthaleins give no promise of value as urinary antiseptics.

PHTHALEINS

These differ from sulphonephthaleins in that a carboxyl group replaces the sulphonic acid group, as shown in the formula (Fig. 3). Those investigated were phenolphthalein, thymolphthalein, tetrabromtetrachlorphenolphthalein, tetra-iodophenolphthalein, phenoltetrachlorphthalein and sulphonated phenolphthalein. *None of these compounds were antiseptic in urine, nor were any of them excreted by the kidney,* excepting the sulphonated phenolphthalein. It is interesting to note that the sulphonation of phenolphthalein gives a soluble compound (*phenolphthalein sulphonic* acid), the sodium salt of which is excreted almost as rapidly as is phenolsulphonephthalein. The similarity *of names, however, between this compound and phenolsulphonephthalein should not give the impression that the two are the same. They differ in composition,* structure and method of preparation. Since the sulphonation of phenolphthalein causes its rapid excretion, the conclusion might be drawn that the sulphonic acid group is essential for rapid elimination; but this theory is upset by the action of the following group of compounds. The sodium salt of sulphonated phenolphthalein has no antiseptic value.

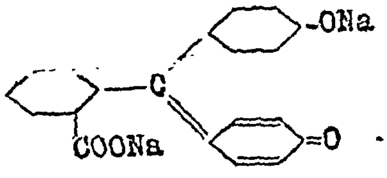


Fig. 3.—Phenolphthalein (sodium salt).

Conclusion.—The phthaleins give no promise of value as urinary antiseptics.

XANTHONES

Compounds of this class are characterized by the fact that the two phenol groups are linked together by an oxygen atom, as illustrated by the structural formula given in Figure 4. It will be seen that this formula differs from that of phenolphthalein only in the presence of an oxygen atom, although the two compounds possess divergent biologic properties. The compounds of this class investigated were fluorescein (resorcinphthalein), sulphonefluorescein (resorcinsulphonephthalein), orcinsulphonephthalein, rhodamin and resorcinsaccharein. All of these compounds in solution are greenish and extremely fluorescent, and without exception they are excreted by the kidney with a rapidity as great as that of phenolsulphonephthalein, if not greater; the average rate of excretion for the group being 70 per cent. in one hour. Since these compounds are quite different chemically, but have one characteristic in common (the oxygen linking two phenol groups), and since they all show great "renal affinity," it is reasonable to assume that we have here a definite relationship between chemical structure and physiologic action. This class further shows that the sulphonic acid group is not essential for rapid excretion.

As germicidal agents, all four are inert excepting rhodamin, which comes very close to filling all the requirements. Rhodamin, which differs from fluorescein in that the two hydroxyl groups are replaced by amino groups, is chemically stable and nontoxic, is rapidly excreted, and kills the colon bacillus in one hour in a dilution of 1:2,000, in water; but when the compound is diluted in urine, this property is entirely lost. An investigation of the nature of this interfering action in urine has not been completed, but present experiments indicate that the loss of antiseptic power of rhodamin in urine cannot be accounted for merely by the buffer value of the urinary salts, which would tend to neutralize any acid or basic properties that a drug might possess.

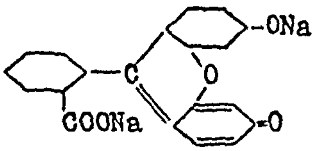


Fig. 4.—Fluorescein (sodium salt).

COMMENT

It is hoped that these experiments may call attention to the inadequacy of the urinary antiseptics in general use, and stimulate interest in the possibilities offered by synthetic chemistry. These investigations are at present being continued, and the properties of various related compounds studied, some of which are old and well known, and others of which are new compounds, synthesized so as to contain various chemical groups that have been shown to produce desired biologic properties.[11]

CONCLUSIONS

The property possessed by phenolsulphonephthalein, by virtue of which it is rapidly eliminated by the kidney, is by no means limited to this compound. Several other more or less closely related compounds show the same striking "renal affinity," and might also be of value in testing renal function were it not that phenolsulphonephathalein itself is so nearly ideal for this purpose.

Compounds of the xanthone class, that is, phthaleins (though not necessarily sulphonephthaleins) in which there is an oxygen atom linking the two phenol groups, show a similar remarkable "renal affinity."

The bromination of these compounds, both sulphonephthaleins and xanthones, interferes with their excretion.

In view of the hitherto overlooked fact that numerous actively germicidal compounds lose their strength (owing to an as yet unexplained cause) when simply diluted with urine in a test tube, the value of every drug used for the purpose of urinary antisepsis ought to be questioned until its antiseptic strength *in urine* has been experimentally demonstrated.

Since it has been possible to establish a certain relationship between chemical structure and renal excretion, and to predict, with a reasonable amount of accuracy, which drugs will and which will not be rapidly excreted; since the synthesis of germicidal compounds, very closely related to the types excreted, has been accomplished; and since one of these germicidal compounds (rhodamin) was excreted and would have been successful but for the interfering action of the urine, the problem has been shown to be worthy of further investigation.

MEDICAL JURISPRUDENCE

THE GENERAL RULES OF LAW GOVERNING THE LIABILITY OF PHYSICIANS AND SURGEONS FOR MALPRACTICE *

LAURENCE A. STEINHARDT, A.B., M.A., LL.B.
NEW YORK

A discussion of the legal liability of physicians and surgeons for malpractice of necessity encompasses a vast area. It not alone includes liability for injuries growing out of the alleged malpractice, but takes in as well liability for the acts of interns and nurses acting under instructions, and also such acts of the patient as tend to relieve the professional man of liability.

Aside from the question of negligence and want of reasonable care, which will be found more fully discussed below, the general rule now obtaining throughout the courts of the United States may be summed up briefly to hold as follows: A physician or surgeon contracts that he possesses that reasonable degree of skill, learning and experience which is ordinarily possessed by others of his profession, and that he will use reasonable and ordinary care and diligence in the treatment of the case committed to him, and that he will use his best judgment in all cases of doubt as to the best course of treatment. He is under an implied obligation when he undertakes to treat diseases or injuries to bring to his aid such obtainable remedies and appliances as discovery and experience have found to be the most appropriate and beneficial in aiding recovery. The law, however, raises no implication on the part of the surgeon to effect a cure. In other words, when a skilful and careful surgeon exercises his best judgment in a case of doubt, he cannot be held liable for a want of success. The mere fact that a patient grows worse under a physician's treatment, and becomes better when his services are dispensed with, is not evidence of malpractice.

The courts in defining the skill and care required in the treatment of a case have used such descriptive words as "proper," "reasonable," "ordinary." These words mean practically the same thing. Such care must be used as would ordinarily be regarded as proper under the circumstances of the case. It is interesting to note that a surgeon is not liable for want of the *highest* degree of skill. Nor is a physician *ipso facto* liable by virtue of the fact that his mode of treatment is not the best that might have been adopted; he is only required to exercise reasonable skill, taking into account the advancement of professional learning.

---

[11] In addition to the references already given, the following will be found of interest:
Clark, W. M., and Lubs, H. A.: The Colorimetric Determination of Hydrogen Ion Concentration and Its Applications in Bacteriology, Jour. Bacteriol., 1917, **2**, 1.
White, E. C., and Acree, S. F.: On the Quinone-Phenolate Theory of Indicators: The Electrical Conductivity of Solutions of Phenolsulphonephthalein and of Its Bromo and Nitro Derivatives, Jour. Am. Chem. Soc., 1917, **39**, 648.
White, E. C.: On the Quinone-Phenolate Theory of Indicators: The Reactions of Phenolsulphonephthalein and of Some of Its Derivatives, Thesis, Univ. Wisconsin, 1915.

* The large majority of the statements made in this article are not the writer's opinions, but are based on decisions of the higher courts.

What constitutes reasonable care and skill must be determined in each case from the circumstances. A leading Connecticut decision holds that to render the physician liable, the negligence need not be great and gross, but a want of ordinary diligence, care and skill is sufficient. This important ruling has been followed in a New York opinion by the Court of Appeals. In determining what constitutes the reasonable and ordinary skill and diligence, which it is the duty of a physician to possess and exercise, the test is the degree of skill and diligence which other physicians in the same general neighborhood and in the same general line of practice ordinarily have and practice.

In estimating the damages that a patient has sustained, when malpractice has been established, the jury is permitted to take into consideration the additional pain and suffering that the patient has suffered, but *not* the suffering caused by the original injury. The patient in establishing malpractice must show, not only that the physician was negligent or unskilful, but also that the injury resulted from such negligence or unskilfulness. The injured person is not bound to seek aid from other physicians to mitigate the consequences of the mistake of the attending physician.

As to the obligation of a physician to continue to attend a patient once under his care, the generally accepted doctrine is well put in a Maine decision which holds that a physician who leaves a patient at a critical stage of the disease without reason or sufficient notice to enable him to procure another medical attendant, is guilty of culpable dereliction of duty. This rule has been still more drastically drawn in some cases wherein it has been held that the physician must judge at his peril as to when it is safe to discontinue treatment, in the absence of consent by the patient to its discontinuance or reasonable notice to procure other attendance.

When a physician engages to attend a patient without limitation of time, he cannot cease his visits except, first, with the consent of the patient, or, secondly, on giving the patient timely notice so that he may employ another physician, or, thirdly, when the condition of the patient is such as no longer to require medical treatment; and of that condition, the physician must judge at his peril. When a physician is called in generally without limitation, the presumption is that his service is under an implied engagement to attend the patient through the illness, or until his services are dispensed with; but when the patient comes to the office of the physician from whom he receives proper treatment, and then fails to return for further treatment, in consequence of which he suffers injury, he is not entitled to maintain an action against the physician for such injury, because it is the result of his own default and misfeasance.

When a physician sends another physician, who is in independent practice, to attend a patient, he is not liable for injuries sustained by the patient if the injury results from the negligence of the other physician, and this is so notwithstanding his promise to attend the patient personally.

Various rules have been propounded by our courts in determining the medical man's liability for errors of judgment. The best summary of this branch of the law, in the writer's opinion, is to be found in the following words, used by the Colorado courts:

> When there are reasonable grounds for doubt and difference of opinion, the professional man, after the exercise of his best judgment, admitting that he possesses the necessary knowledge, is not responsible for errors of judgment or mistakes, and is only chargeable with error where such error could not have arisen except from want of, or the exercise of, reasonable skill and diligence.

The attention of medical men should be directed to the so-called rule against trying experiments. It would appear from this doctrine of law that any advancement in the profession must be at the personal risk of the physician rather than of the patient. Thus, any deviation from the established mode of practice is sufficient to charge the surgeon in case of any injury arising to the patient.

If the settled practice of the profession allows but one course of treatment in the case, any departure from such course may properly be regarded as the result of want of knowledge, skill and experience or attention. In other words, when a particular mode of treatment is upheld by the consensus of opinion among the members of the medical profession, it should be followed by the ordinary practitioner; and if he sees fit to experiment with some other mode, he does so at his peril. This leads us to two conclusions as a matter of law: (*a*) A physician may not try experiments with his patients to their injury, and (*b*) the established treatment must be followed. The only limitation applying to this rule is that the acts and skill of the physician are to be judged by the school of practice to which he belongs. He must come up at least to the average standard of the school of practice, to which he professes to adhere.

When a patient charges a physician with injuries resulting from improper or negligent treatment, he assumes the burden of proof. He must accordingly prove to the satisfaction of the court or jury, as the case may be, by a fair preponderance of the credible evidence, that the physician did not exercise ordinary skill and care.

The old decisions occasionally distinguished between the liability of medical men for malpractice toward patients who paid for the services rendered, and those for whom the services were gratuitously performed. It may be stated, as a fair deduction from recent authorities, that this distinction no longer exists. The generally accepted rule in the courts today holds that the law requires the same degree of care of a surgeon when his services are gratuitous as when he receives compensation therefor.

In an action for malpractice, the physician's reputation for skill and learning will not avail him as a defense. The question in issue is the degree of care and skill in a particular given case. Reputation does not affect the treatment of the case in litigation. This rule, however, works conversely to hold that evidence of a reputation for negligence and unskilfulness as well as prior actions for malpractice will not avail to establish or aid the patient's case.

It goes, of course, without saying, that on the trial of an action for malpractice, the question as to whether the physician has or has not acted negligently or unskilfully is a question of fact, not one of law, and therefore determinable by the jury.

The generally accepted doctrine today holds that an action against a physician or surgeon for malpractice does not survive his death. There, have, however, been exceptions to this rule in some of the states.

Considerable discussion and litigation have arisen out of the question of the liability of a surgeon for performing a surgical operation without the consent of the patient. The law thus far established is that a physician is liable for operating on a patient, unless he obtains the consent either of the patient, if competent to give such consent, or if not, of some one who, under such circumstances, would be legally authorized to give the requisite consent. In certain instances consent will be presumed unless the person operated on has been the victim of false or fraudulent representations, or has been deliberately deceived. We may take it as established by no mean authorities that, except in cases in which the consent is express or implied by circumstances, and occasions other than a mere general retainer for medical examination and treatment, and except also when there is a superior authority which can legally and rightfully dispose of the person of the patient, and which gives consent, a surgeon has no right to violate the person of a patient by a serious major operation, or one removing an important part of the body. A surgeon, however, is not liable for failure to procure the consent of a husband to a surgical operation on his wife, if the wife herself consents to it, and it is immaterial that the operation involves the removal of the wife's ovaries, which will deprive the husband of offspring.

While it is practically conceded by all the cases that it is competent for a physician or surgeon in an action for malpractice to prove negligence of the patient, or of another whose negligence is chargeable to him, directly and proximately contributing to the injury, there is some confusion among the cases as to whether the effect of such negligence is to bar a recovery altogether, or merely to mitigate or reduce the damages. There are three different aspects in which the question of the effect of negligence of the patient himself, or of a third person whose negligence is chargeable to him, may arise:

(*a*) When it appears that there was no breach of duty on the part of the physician or surgeon, and that the injury was due entirely to the patient's negligence. In such a case it is clear that there can be no recovery at all.

(*b*) When it appears that there was a breach of duty on the part of the physician or surgeon, but that the breach in and of itself would not have resulted in substantial injury to the patient, and when the patient's own negligence has aggravated the physician's breach, the two acts jointly causing serious injury to the patient. In these cases it is very generally held that there may be no recovery, as the patient's negligence, though of a lesser degree than the physician's, is the proximate cause of the injury.

(*c*) When it appears that there was a breach of duty on the part of the physician or surgeon, which alone would have resulted in serious injury to the patient, but which has been aggravated by the patient's own negligence. In these cases the patient may recover from the physician, but the patient's negligence may be set up in mitigating the damages recoverable.

As a hand rule for measuring the rights of a patient who has been guilty of contributory negligence, it may be briefly stated that to preclude a recovery, the patient's own negligence or improper conduct must have contributed substantially to produce the injury.

The question as to the liability of a surgeon for the negligence of an intern attached to the hospital in which the former performs an operation was presented for the first time to the courts of the United States in a case entitled *Harris* v. *Fall,* decided in January, 1910, by the Circuit Court of the United States, for the Northern District of Illinois. The language of the court in its opinion is not very clear, and the sole deduction to be made therefrom is that the contract of a surgeon undertaking to perform an operation in a general hospital does not imply liability for mistakes in care, dressings and treatments given by the hospital attendants, *during convalescence after the operation is finished.* The question of the surgeon's liability for the negligence of interns or nurses *during* the operation was not decided by the court. In another decision it was held that the surgeons of a hospital were not liable for the negligence of the nurses in scalding a patient in a hot bath prescribed by the surgeons, when the latter were not near enough to be aware of the negligent act and to prevent it. The nurse herself, of course, would be liable if a proper case of negligence should be made out. In a Massachusetts case, the rule was flatly laid down that a surgeon is not responsible for the negligence of hospital nurses in attending a patient after a surgical operation. As to the liability of the hospital for the negligence of its nurses or attendants, this doctrine rests on the general foundation that a master is responsible for the torts of his servants, within the scope of their employment. A hospital that is a public charitable institution is generally relieved from liability.

There are many and various technical rules of procedure in litigations for malpractice, including questions of pleading and evidence, that have not been touched on in this article, which deals mainly with questions of substantive law. Two questions of technical procedure, however, are noteworthy and should be brought to the reader's attention.

1. The great majority of the states have statutory provisions providing that communications between physicians and patients as to professional matters are privileged and not subject to testimony in court, without express waiver. The general doctrine governing the right of a plaintiff in an action for malpractice to avail himself of privilege, as against testimony of the defendant or other physicians, holds that testimony on behalf of the patient in an action brought by himself against his physician operates as a waiver of his privilege, both as to the physician himself and to others called in consultation with him, but not as to physicians independently employed—unless, it may be, the patient testifies as to his communications to the latter.

2. The question is in some doubt as to whether the recovery of his fees by a physician in an action brought for that purpose is a bar to a subsequent action brought by the patient for malpractice.

The New York decisions generally hold that a recovery by the physician acts as a bar; but there are numerous sound authorities to the effect that, the question of malpractice not having been litigated in the action for fees, the patient is free to pursue such an action. The latter rule is the sounder, in my opinion, but the question is one which depends on the jurisdiction in which the action is brought and the questions presented on the previous litigation.

120 Broadway.

TRICHINOSIS

A REPORT OF THREE CASES SIMULATING MENINGITIS, WITH THE FINDINGS OF TRICHINA LARVAE IN SPINAL FLUID *

JACOB MEYER, M.S., M.D.
Resident Physician, Cook County Hospital
CHICAGO

Since Van Cott and Lintz[1] first reported the findings of trichinae in the spinal fluid, there have been reports by Bloch,[2] Elliott,[3] Lintz,[4] Cummins and Carson,[5] and Salzer[6] confirming the observation. These reports do not emphasize the occurrence of meningeal symptoms. Bloch particularly emphasizes the presence of trichinae in the spinal fluid without any symptoms referable to the brain and cord. He says, however, that "the presence of a positive Nonne and Noguchi would indicate meningeal irritation." Elliott mentions a positive Kernig sign, but asserts it is a false Kernig and one due to pain. Bloch and Hassin[7] report a case of trichinosis in a young man, who developed a left-sided hemiparesis, and showed exaggerated knee jerks, a bilateral Babinski reflex, and left-sided ankle clonics. No trichinae were found in the spinal fluid. The following cases are reported because of the definite meningeal symptoms, the changes in the spinal fluid, and the difficulties encountered in early diagnosis.

At the Cook County Hospital, all patients enter the receiving ward, where an examining physician makes a diagnosis. The patient is then sent to the proper ward. In the three cases herein reported, the patients entered the contagious disease hospital, Jan. 4, 1918, with an examining-room diagnosis of epidemic meningitis. The three are members of the same family. No history was obtainable, except from the oldest girl, who is about 12 years of age.

REPORT OF CASES

Case 1.—S. P., girl, aged 6 years, was sick six days with headache and vomiting. There was no diarrhea and no abdominal distress. The patient, an Italian child, was brought to the ward in an irrational state. The striking feature of the case was marked irritability, in spite of which, the child responded when told to show her teeth, put out her tongue, etc. There was a marked edema of both upper eyelids. The temperature on admission was 100.1 F., the pulse was 112 and the respiration, 24. There was a definite *rigidity of the neck*, and when the child was lifted by the head, she cried. Photophobia was present. There were a few crusts on the nose but no herpes on the lips. The heart and lungs were normal. There was no tenderness, but an uncertain degree of general rigidity about the abdomen. The liver was negative and the spleen was not palpable. There was tenderness over the extremities. The Kernig sign was strongly positive. The knee jerks were absent and there was no Brudzinski's sign. The spinal fluid was under *increased pressure*, was clear and showed 58 cells per cubic millimeter; the Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. The presence of lymphocytes was observed, but there were no organisms. On the basis of these findings, a diagnosis was made as follows: The clinical manifestations of the patient pointed to a definite meningitis. The character of the spinal fluid, together with the absence of knee jerks, pointed to a poliomyelitis, although there was no evidence of paralysis.

The next day, the child was extremely sick. Her temperature was 103, and her pulse, 96. The Brudzinski and the Kernig signs were positive. There was an edema of the legs and the eyes, as well as marked tenderness over the extremities, particularly over the right elbow when held in a position of flexion. The blood count revealed a leukocytosis of 8,000, and an eosinophilia of 10 per cent. Spinal puncture was repeated and revealed fifty cells which were lymphocytes. The fluid was under increased pressure. Trichinae were found, two or three in a field. The Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. A section of muscle removed from the biceps on the same day showed unencapsulated trichinae. Blood was removed, Jan. 10, 1918, from a vein in the elbow, and examination was delayed until Jan. 14, 1918. It was examined according to the technic of Herrick and Janeway, and many trichina larvae were found. The blood count, January 11, revealed a leukocytosis of 11,000 and an eosinophilia of 8 per cent. As the patient was observed, the edema of the eyelids and the legs grew less, and muscular tenderness was definitely localized; but stiffness of the neck persisted, as well as the Kernig and the Brudzinski signs. The patient was transferred to the Children's Hospital.

Case 2.—D. P., boy, aged 8 years, who had been sick four days, was admitted to the hospital, Jan. 4, 1918. He was a brother of the child described in the foregoing. He was unable to rise and looked sick. His face was swollen, particularly about the eyelids. His older sister said he had been sick for four days with headache and vomiting. The temperature on admission was 101.8; pulse, 110 and the respiration, 28. The head was large and square. There was a marked edema of the upper eyelids, particularly of the left, which almost closed the eye. There was a herpetic sore on the upper lip. The throat was congested. The heart and the lungs were normal. The abdomen was not tender, but there was a degree of general rigidity present. Neither the liver nor the spleen was palpable. In both axillae, there were numerous small pinpoint hyperemic spots, which tended to fade on pressure. Both the upper and the lower extremities were tender to touch. There was an infected vaccination mark over the left upper extremity. The *Kernig sign* was strongly positive and the knee jerks exaggerated. The Babinski reflex was doubtful. A spinal puncture was made, and the spinal fluid was under increased pressure, being clear and showing fifty cells per cubic millimeter. The presence of lymphocytes was observed. The Nonne reaction was positive and Ross-Jones' test, negative. Haines solution was reduced. A diagnosis, as in the former case, was made as follows: The physical findings were very suggestive of a meningeal inflammation or irritation, but the etiologic factor was uncertain. Vigorous catharsis was then ordered. Two days later, the patient had definite soreness of the muscles and edema of the legs and the eyes. The blood count revealed a leukocytosis of 30,000 and eosinophilia of 50 per cent. Repeated blood counts revealed a leukocytosis of 15,000 and an eosinophilia of 15 per cent. Another differential revealed an eosinophilia of 24 per cent. The boy improved rapidly. Another special puncture was made two days after admission, but was bloody (traumatic). The blood was examined for trichinae, but none were found. No examination of the muscle was made.

Case 3.—T. P., girl, aged 12, was the oldest of the three children brought to the ward with a diagnosis of meningitis. She said she had been sick for about two days, complaining only of headache and stiffness of the neck. There was no other history. She did not appear very sick. The temperature was 100.8, and the pulse, 88. The head was negative and eyes were watery as if she had been crying. Both eyelids were swollen and edematous. There was no photophobia.

---

* From the Contagious Hospital of Cook County Hospital.

[1] Van Cott, J. M., and Lintz, William: Trichinosis, The Journal A. M. A., Feb. 28, 1914, p. 680.

[2] Bloch, Leon: Trichinosis; Report of a Case with the Trichina Larvae in the Spinal Fluid, The Journal A. M. A., Dec. 18, 1915, p. 2140.

[3] Elliott, A. R.: Trichinosis; Report of a Case with Trichina Larvae in the Spinal Fluid, The Journal A. M. A., Feb. 12, 1916, p. 504.

[4] Lintz, William: Trichinosis and the Cerebrospinal Fluid, The Journal A. M. A., June 10, 1916, p. 1856.

[5] Cummins, W. T., and Carson, G. R.: A Case of Trichinosis with Embryo in the Spinal Fluid, The Journal A. M. A., June 10, 1916, p. 1856.

[6] Salzer, B. F.: A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy, The Journal A. M. A., Aug. 19, 1916, p. 579.

[7] Bloch, Leon, and Hassin, G. B.: Med. Rec., New York, 1917, **91**, 537.

Herpes were present on upper lip. There was a small amount of rigidity of the muscle of the neck, which was apparently not voluntary. The heart and the lungs were apparently normal. The abdomen revealed a slight tenderness in the region of the spleen, but the spleen was not palpable. There was a slight rigidity of the abdomen. There was no pain or tenderness over the extremities, except in the left elbow joint, but it was difficult to localize pain definitely. No evidence of any paralysis was discovered.

The Kernig sign was positive, both knee jerks were absent, and the Brudzinski sign was negative. Forty c.c. of the spinal fluid were removed. It was under increased pressure, was clear, and showed 240 cells per cubic millimeter, and lymphocytes. The Ross-Jones test was negative and the Nonne reaction positive.

The findings present were suggestive of a meningitis. The character of the spinal fluid, on the contrary, suggested poliomyelitis, which diagnosis was further supported by the absence of knee jerks and pain in the region of the elbow.

Jan. 5, 1918, there was no change. The Kernig sign was positive and there was a suggestion of Brudzinski's sign. The throat was congested. The skin of the abdomen revealed a few red pinpoint areas, not petechial, and unlike rose spots, which fade on pressure. There was pain in the region of the elbow anteriorly and not over the joint. The rigidity of the neck was only moderate.

January 6, there was headache with pain in the legs, arms and back. The patient had difficulty in sitting up, and in elevating the right arm. There was no evidence of paralysis. Knee jerks were now present but were hard to elicit. The Kernig sign persisted. The blood count revealed a leukocytosis of 10,800, and an eosinophilia of 8 per cent.

January 7, the patient was very sick, with a temperature of 103 and a pulse of 110. A spinal puncture was made. The spinal fluid was under increased pressure, and the first portion was bloody. When it was examined, actively motile ous trichinae were found.

January 11, the spinal puncture was repeated. The fluid was clear, was under increased pressure, and showed eighty cells per cubic millimeter, as well as the presence of lymphocytes. Trichina larvae were present. The Nonne reaction was positive and the Ross-Jones test negative. The Haines solution was reduced. The nitric acid test for albumin was negative. The biceps muscle was harpooned, and actively motile trichinae were found. The blood examination was made according to Herrick and Janeway technic, and numerour trichinae were found.

No history of the eating of ham, pork or pork sausage was elicited from the children or parents. Subsequently the mother was admitted to the medical ward of the hospital, and gave a good diarrheal history, but no trichinae were found in the muscles.

COMMENT

If we analyze the foregoing it will be observed that we are dealing with three cases showing distinct meningeal symptoms. Also in two of these, the spinal fluid containing the trichina larvae showed marked cellular increase. Van Cott and Lintz,[1] Bloch[2] and others have suggested the possibility of meningeal irritation due to the presence of trichinae in the spinal fluid. None of the previous reports mention any increased cell count. Van Cott and Lintz[1] observed a moderate increase in pressure, as well as a gray sediment on standing. The centrifuged specimen showed a number of lymphocytes and failed to reduce Fehling's solution.

Elliott[3] counted 3 cells per cubic millimeter. Cummins and Carson report a count of 3 cells. Lintz[4] reports an occasional lymphocyte and failure to reduce Benedict's solution in three cases.

The spinal fluid in our cases, as already noted, was clear and under increased pressure. The cell count was as high as 240 and as low as 40 per cubic millimeter. The Nome reaction was positive, the Ross-Jones' test was negative, and Haines solution was reduced. The nitric acid test for albumin was negative. We consider this as definite evidence of meningeal irritation. Our record shows a similar evidence in Case No. 2, in which no trichinae were found in the spinal fluid. It is unlikely that the toxemia associated would cause these changes, and there is a possibility that the trichinae were overlooked in the examination of the spinal fluid. That the meningeal symptoms are very likely due to meningeal irritation is in accord with definite changes in the spinal fluid, so that two of the cases might be called meningitis due to trichina. While it is true that a Kernig sign may be due to muscular swelling and edema, nevertheless the Kernig sign in these cases was present before the edema developed. The edema noted was not similar to the ordinary type, which pits on pressure, but was rather hard, glistening and boardlike, particularly over the extremities. Granting a false Kernig sign, on what basis other than meningeal irritation are we to explain the stiff neck, the suggestive Brudzinski sign, the exaggerated knee jerk (in one case), and the headache and vomiting, unless the cause could possibly be the toxemia? But toxemia cannot account for the cellular change in the spinal fluid.

I wish to call attention to the necessity of differentiating these early cases with meningeal symptoms from poliomyelitis. Van Cott and Lintz state that "in children marked weakness of the limbs is present," and report one case in a child of 8 years, in whom locomotion was difficult because of the great prostration. In Case 2, the patient was unable to arise on the examining-room table and stand, unless supported. In the other two cases, the patellar reflexes were absent. In addition, tenderness was present over the extremities, and patients complained of pain on pressure. In children, it is at times difficult to determine whether one is dealing with a perineuritis or a myositis, as the pain response is very readily obtained. When, in addition to these factors, a physician examines the spinal fluid, and finds it clear, under increased pressure, and observes a cell count ranging from 240 to 40, he may justly suspect poliomyelitis in the absence of any evidence of paralysis. The diagnosis of trichinosis, however, is established by the occurrences of edema, the presence of an eosinophilia in the blood picture, and the isolation of the trichinae from the spinal fluid or muscle.

The high eosinophilia of 50 per cent., in Case 2, and the comparatively low eosinophilia in the other two children, who were extremely ill, is in accord with the observations of Opie,[8] to the effect that the more severe the infection the lower the eosinophilia, and vice versa. In this connection I should also like to make the following observations:

In Case 3 the patient, who was the oldest of the three, developed an urticaria. By many physicians urticaria is considered an anaphylactic reaction. It is known that in the postanaphylactic stage there is an increase in eosinophilia (Herrick[9]). Accordingly, a differential count was made when the urticaria first appeared, and was found to be 12 per cent. Twenty-four hours later it was 10 per cent.

SUMMARY

1. Trichinae in the spinal fluid in two cases produced definite clinical symptoms of meningitis.

---

8. Opie, E. L.: Am. Jour. Med. Sc., 1904, **127**, 217, 477.
9. Herrick, W. W.: Experimental Eosinophilia with an Extract of an Animal Parasite, Arch. Int. Med., February, 1913, p. 165.

2. The spinal fluid in trichinosis, in addition to the trichinae, showed an increase in lymphocytes, from 240 to 40 per cubic millimeter, reduced the Haines solution, and gave a positive Ross-Jones test.

3. Trichinosis with meningeal irritation must be differentiated from poliomyelitis.

THE DREYER METHOD OF AGGLUTINATION

AS USED AT THE ARMY MEDICAL SCHOOL*

ERIC A. FENNEL, M.D.
Lieutenant, M. C., U. S. Army
WASHINGTON, D. C.

That agglutination tests, made after typhoid and paratyphoid vaccination or after the diseases themselves, may have uniformity and comparable values, the following technic, a slight modification of that of Dreyer,[1] is offered.

The method consists simply of macroscopic agglutination tests on varying dilutions of serum, using a killed culture of *B. typhosus* or *B. paratyphosus* A or B, the agglutinability of which has been determined by titration against a given standard, established by the Department of Pathology, University of Oxford.

The necessary apparatus is readily available, and consists of a Wright's capsule, for securing blood; about thirty small test tubes, chemically clean, but not necessarily sterile; one 1 c.c. pipet, graduated in tenths, such as used in Wassermann work; one 2 c.c. pipet for making the dilutions; a few ounces of physiologic sodium chlorid solution, not necessarily sterile; and a quantity of the standard culture. By comparison with this standard culture, a new supply may be made for extended work.

The technic for the test is quite simple. Sufficient blood is taken in the capsule to yield 0.3 c.c. of serum. This amount is withdrawn in a pipet and transferred to the first tube. This tube has previously received 2.7 c.c. of saline solution, while the following nine tubes have each received 1.5 c.c. of saline solution. Of this first 1:10 dilution of serum, 1.5 c.c. are carried into the second tube, mixed thoroughly, and 1.5 c.c. of this 1:20 dilution is carried forward. This procedure is carried out through the series of ten tubes, the last 1.5 c.c. being discarded. Beginning in the weaker dilution, the diluted serums are each divided into three tubes, each tube containing 0.5 c.c. of the serum dilution. The tube rack then contains three series of ten tubes containing serum dilutions ranging from 1:10 to 1:5,120.

To each tube in the first series, 0.75 c.c. of the standard culture of *B. typhosus* is added; to each tube of the second series, 0.75 c.c. of the standard culture of *B. paratyphosus* A is added; and to each tube of the third series, a like amount of the culture of *B. paratyphosus* B is added. The tubes are then thoroughly shaken.

The tubes are then placed in a water bath at from 50 to 55 C. for two hours; are removed and cooled for fifteen minutes, and are then read. The highest dilution showing agglutination, without sedimentation visible to the naked eye, gives the reading. The dilution of the serum in this tube, divided by the factor of agglutinability of the culture used, gives a final reading expressed in the number of agglutinin units per cubic centimeter of the serum. (It must be kept in mind that the addition of the culture has increased the dilution of the serum one and a half times, the first tube representing a dilution of 1:25, the last a dilution of 1:12,800.) These readings are comparable with each other, whenever the same technic has been used, and a standard agglutinable culture has been used.

If it becomes necessary to make up a new supply of the standard agglutinable culture of *B. typhosus*, the procedure is as follows: *B. typhosus* is subcultured daily in broth, for about ten days, to increase its agglutinability and reduce its auto-agglutinability. Finally it is planted in broth in partly filled flasks and incubated twenty-four hours. At the end of that time, 0.1 per cent. formaldehyd solution (full strength) is added, it is placed in an ice box for four or five days, and it is shaken repeatedly. The then sterile culture is ready to be standardized for (1) opacity and (2) agglutinability.

To standardize for opacity, two series of fifteen tubes each (tubes of equal size and of clear glass) are set up, and varying dilutions of standard culture in one series, and the culture under standardization in the other, are made in accordance with the accompanying schedule.

DILUTIONS

Culture—	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.6	1.8	2.0
Physiologic sodium chlorid solution—	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.8	0.6	0.4	0.2	0.0

A tube from one series, chosen at random, is matched for opacity with the tubes in the other series. The dilution of each culture in these tubes is noted. This procedure is repeated six times and the average taken. The necessary dilution of the new culture is thus determined, the dilution to be made with physiologic sodium chlorid solution, to which has been added 0.1 per cent. formaldehyd solution. It is then to be bottled and kept in the ice box.

To standardize for agglutinability, an immune serum is procured. A rabbit immune serum of known agglutinin unit content is to be preferred, though human serum, taken soon after inoculation, serves the purpose. The agglutinating serum is set up in two parallel series, in varying dilutions, the variations not to be excessive. To one series the standard culture is added, to the other the culture under standardization. These tubes are then shaken, incubated at 55 C. for two hours and read for the highest dilutions showing agglutination visible to the naked eye. That dilution in the known culture is to that dilution in the new culture as the factor of the known culture is to *x* (the factor of the new culture).

This method is, of course, similarly applicable to the *B. paratyphosus* A and B. It is also applicable to the three strains of *B. dysenteriae* and *B. coli*, though in the latter cases, at the Army Medical School, it was necessary to establish our own standard.

The foregoing method is an ideal one for the Gruber-Widal method for the diagnosis of typhoid or paratyphoid fever in the uninoculated, and is the best method for following the resistance of the patient as expressed in agglutinin units. For the quantitative determination of antibodies produced after Army triple typhoid vaccine, it offers the only simple and practicable method that will yield results that are comparable not only within themselves, but also with the results of other workers in the same field.

For the diagnosis of typhoid or paratyphoid fever in patients previously inoculated with the Army triple typhoid vaccine, it offers a valuable adjunct to the cultivation of the organism from the blood or the stool, for it has been found that by this method, though a positive Widal exists, owing to a previous inoculation, quantitative fluctuations of the agglutinin content are indicative of active infection.

Cultures of the three types of pneumococci and of four strains of meningococci are being used at the Army Medical School in an effort to procure comparable results in determining the antibodies produced after protective inoculations. It has been found necessary to heat these cultures, in addition to the formaldehyd solution, particularly in the case of the meningococcus, to prevent autolysis.

---

* From the Department of Pathology, Army Medical School.

[1] Dreyer, G., and Torrens, J. A.: Lancet, London, 1915, 2, 1369.

A few suggestions may facilitate work along this line. Readings should always be made under constant lighting conditions. Bacterial count may be substituted for standardization by opacity. One-tenth per cent. formaldehyd solution kills bacteria, but not fungi. If work is to be done intermittently, it is best to bottle the culture in small bottles, for preservation, since contamination by fungi is common. For routine work, large bottles, from which the daily amount is removed under aseptic conditions, yield best results. Under proper storage conditions (a dark ice chest), the factor *of* agglutinability does not change in six months, and probably continues the same for a much longer period of time.

THE URINARY TRACT IN PULMONARY TUBERCULOSIS

A REPORT OF THE STUDY OF SIX HUNDRED CASES

S. WILLIAM SCHAPIRA, M.D.
Professor of Clinical Surgery and Director of Genito-Urinary Division, Fordham University School of Medicine; Visiting Genito-Urinary Surgeon, Sea View and Sydenham Hospitals

JOSEPH WITTENBERG, M.D.

AND

SIDNEY L. SPIEGELBERG, M.D.
Instructors of Genito-Urinary Surgery, Fordham University School of Medicine; Assistant Visiting Genito-Urinary Surgeons, Sea View Hospital

NEW YORK

For years we have had forced on our attention, at frequent intervals, the question of the relative value of surgical and medical treatment of tuberculosis of the kidney, and of the true significance of the various symptoms and signs on the presence or absence of which the diagnosis of this condition is made. We frequently see patients who apply for relief of advanced tuberculosis of the second kidney, very shortly after the first kidney had been removed for tuberculous involvement. In the Sea View Hospital alone, since 1913, we have seen at least twenty-five such patients who were admitted within eight to twelve weeks after the nephrectomy.

This problem cannot be dismissed with the statement that "a kidney which is practically destroyed and which acts as a focus for dissemination of the disease, and the toxins generated in which irritate the second kidney during their elimination, should be removed—the second kidney being in good condition," nor that "a kidney which contains the sole active focus of tuberculosis in the body should be removed to prevent dissemination of the disease." The fact remains that in the cases of renal tuberculosis in which nephrectomy is done, the large majority of primary deaths are due to inability of the remaining kidney, and the secondary death rate is high.

It seems to us that the most important points to settle in considering the relative values of the surgical and the medical treatment of this condition are, "Do we judge correctly the significance of the symptoms and signs we attribute to it?" and "Do we read aright the results we obtain with the precise methods of examination of the urinary organs which are now at our command?" In other words, do we operate in some cases which had best be let alone, because of misconception of the significance of these symptoms and signs?

To get more light on this perplexing subject, we have carefully observed at the Sea View Hospital a series of 600 cases of tuberculosis, and have studied the relation of the urinary organs to tuberculosis of the body in general, the presence and absence of symptoms referred to the genito-urinary organs and their significance, and the presence and absence of signs referred to these organs and their significance.

The series under consideration differs from some of the groups of cases previously observed and reported by others, in that this series consists entirely of cases not unlike those which the physician and surgeon meet in everyday practice, rather than of necropsy findings in those who have succumbed to the tuberculosis, and in whom, naturally, the disease had made more extensive ravages. This will explain the more favorable findings—the considerably smaller percentage of complications in the genito-urinary organs found in this series than in those of other observers. The patients under observation were 386 men and 214 women—all adults.

Because of:

1. The difficulty in demonstrating the tubercle bacilli in the urine; and
2. When the bacilli are found, the difficulty of diagnosing the seat of the focus in the urinary tract, whether it is:
   - (*A*) in one kidney or the other, in the ureter, bladder, or in the prostatic urethra;
   - (*B*) if foci were present in several of these organs, or
   - (*C*) whether no tuberculous lesions were present or demonstrable in any of the urinary organs in spite of
     - (*a*) the urine containing tubercle bacilli, or
     - (*b*) of the presence of subjective symptoms referred to the genito-urinary tract or of both,

the following careful routine was observed, and the following results noted:

1. A note was made of all patients who gave a history of subjective symptoms referable to the genito-urinary tract, such as nocturnal and diurnal frequency of urination, tenesmus, etc. These numbered sixty-three (10.5 per cent. of the total).

2. A twenty-four hour specimen of urine of each of the 600 patients under observation was examined by the usual routine method, and a separate search was made for acid-fast bacilli.

3. In all patients whose urine showed acid-fast bacilli, the bladder urine was drawn by catheter under rigid aseptic precautions, to guard against contamination of the urine by smegma bacilli, which are also acid fast and otherwise resemble, morphologically, the tubercle bacillus, and which are often found in the anterior urethra in the male and are very commonly present on the external genitals of the female.

The following reports of observations as to the frequency with which the smegma bacilli are met about the urogenital organs are cited to show the necessity of such precautions: Young and Churchman[1] took smears from the fossa navicularis in twenty-four patients, and found the smegma bacilli in eleven (46 per cent.). Brereton and Smith[2] examined two series of cases with the following results: In 126 insane patients, red-stained bacilli were found in eighty-five (67.5 per cent.) after the smears were decolorized with 25 per cent. sulphuric acid. After being counterstained with methylene blue, which stains smegma bacilli but not the tubercle bacilli, only nineteen of these smears (22 per cent.) were found to contain red-stained bacilli. The second series consisted of twenty patients. In these, red-stained bacilli were found in thirteen (65 per cent.) after decolorization of the smears with 25 per cent. sulphuric acid, and in only two (10 per cent.) after the smears had been counterstained with methylene blue. Brereton and Smith question whether true smegma bacilli have ever been cultivated, and until a satisfactory method has been discovered for cultivation of the true smegma bacilli, we believe it is useless to base any diagnostic value on a procedure that depends on their growth.

---

[1] Young and Churchman: Am. Jour. Med. Sc., 1905, **130**, 52.
[2] Brereton and Smith: Am. Jour. Med. Sc., 1914, **148**, 267.

4. Samples of ninety-one urines that showed the presence of acid-fast bacilli were sedimented and injected into guinea-pigs. A positive result was obtained in only twenty-three cases (25 per cent.). This is a much smaller percentage for the total number of cases studied than was found by other observers, being only one in twenty-seven cases as compared to one in eleven found by Cunningham and one in ten found by Bernstein.

5. A searching cystoscopic examination of the bladder, the trigon and the ureteral orifices was made in the sixty-three patients who presented subjective symptoms referable to the genito-urinary tract, as well as in such other patients as would consent to it. In those patients whose catheterized bladder urine showed acid-fast bacilli, the ureters were catheterized (when that was possible) for further examination of the urine from the individual kidneys. In view of the interesting results obtained, it is unfortunate that many of those who had no subjective symptoms referable to the urinary tract refused cystoscopic examination and ureteral catheterization.

6. The genital organs of the 386 men patients showed the following associated tuberculous lesions: twenty-three tuberculous prostates, eleven tuberculous seminal vesicles, and sixteen tuberculous epididymides.

7. In a number of cases, tests of the kidney function were made, to note the effect of tuberculosis of the kidney on its function. In this series, the phlorizin glycosuria test (which we find to be as reliable as any, in all except diabetic patients) was made.

RESULTS OBTAINED

Routine examination of the urine was made of 449 patients whose urinary organs were negative to any form of perceptible tuberculous involvement or to subjective symptoms. In 220 the urine was normal, and in 229 the urine showed some albumin, casts, etc.

The presence of tubercle bacilli was by no means limited to such urines as showed apparently damaged organs. Of fifty cases in which the presence of the bacilli was the only indication of tuberculosis in the urinary tract, in twenty-six the urine was otherwise negative, and in twenty-four it showed albumin, casts, etc.

The 151 cases which showed some other abnormality than simple chronic nephritis, were divided into two main groups: Group A, consisting of ninety-one patients, showing the presence, microscopically, of tubercle bacilli in the urine, and Group B, sixty cases in whose urine repeated microscopic examination failed to show the presence of the tubercle bacillus.

Animal inoculation with sedimented urine from the ninety-one patients of Group A proved positive in only twenty-three. Among the sixty patients of Group B were found two whose urines proved positive on animal inoculation.

The number that gave subjective symptoms referable to the urinary tract was sixty-three. A careful cystoscopic examination of these sixty-three cases showed rather surprising results: Twenty-three showed bladder lesions; forty showed no bladder lesions on the most careful scrutiny. Of the forty, twenty-three presented tuberculous lesions in the genital organs, and seventeen showed no tuberculous lesions discernible anywhere in the genito-urinary tract.

We thus see that much the larger number (64 per cent.) of these patients did not have discoverable lesions in the bladder which would explain the symptoms. In these cases the symptoms can be accounted for only as being reflex, being due to irritation of the urine as it passes through the bladder, or being due to both. We must mention here, as tending to acquit the urine of such irritating action, that some of these cases of subjective symptoms without bladder lesions showed no tubercle bacilli in the urine by microscope or by animal inoculation; one had urine that was normal in every way—that did not show a trace of albumin or a cast, and five had tubercle bacilli in the urine without albumin, etc.; and that of twenty-three cases of subjective symptoms which had no lesions in the bladder but did show tuberculous foci in the genital organs, several had normal urine, eighteen showed no tubercle bacilli, and only five showed tubercle bacilli microscopically or by microscopic examination and animal inoculation. On the other hand, tuberculous lesions were found in the bladder in seventeen patients who had no subjective symptoms.

FINDINGS IN THE TWO GROUPS

Group A, 91 Cases	Group B, 60 Cases
50 were negative to animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement	
15 gave positive results in animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement	2 cases proved positive by animal inoculation, and otherwise showed no symptoms or signs of tuberculous involvement
6 showed lesions of the bladder, but did not have subjective symptoms	6 cases showed lesions of the bladder, but did not have subjective symptoms
15 had lesions of the bladder and subjective symptoms	8 had lesions of the bladder and subjective symptoms
5 had no bladder lesions, but did have subjective symptoms referred to the bladder	12 had no bladder lesions who did have subjective symptoms referred to the bladder

We thus find that the foregoing 28 cases, in which we would expect to find tubercle bacilli, were in Group B, i. e., they failed to show the presence of the bacilli on microscopic examination.

Because many of the patients who presented tuberculous lesions in the genito-urinary organs outside the bladder (that viscus appearing normal) complained of painful urination, we will mention here that four men with such lesions and with apparently normal bladders presented no subjective bladder symptoms.

A number of patients were examined by the phlorizin glycosuria test for functional activity of the kidney. The normal kidney will excrete sugar in from eighteen to twenty-one minutes after the hypodermic injection of 1 c.c. of a 1:200 solution of phlorizin. The length of time before the sugar appears is increased when the kidney substance is damaged. In our cases the results were negative. Kidneys which excreted tubercle bacilli, the urine, however, being otherwise normal, responded in the normal time; kidneys which were the seat of chronic inflammation as shown by the excretion of albumin and of other abnormal constituents showed a delayed excretion of sugar.

CONCLUSIONS

1. As to the relation of subjective symptoms to lesions of the urinary tract: We find that frequency, painful urination, tenesmus, etc., do not prove the presence of discoverable lesions in the urinary tract. In fact, in but little over one third of such cases did we find lesions which appeared in themselves as sufficient cause for these symptoms.

2. As to the relation of symptoms to the presence of tubercle bacilli in the urine: Neither can we say that these symptoms, as a rule, are the results of the passing of irritating urine, since in many of these cases the urine is entirely negative or is not sufficiently affected to give reasonable grounds for assuming that it irritates the bladder mouth and urethra sufficiently to cause the subjective disturbances found.

3. As to the presence of tubercle bacilli in the urine in tuberculosis of the genito-urinary organs:

(*a*) Many urines which show the presence of acid-fast bacilli by microscope prove negative in animal inoculation tests. (The converse is infrequent.)

(*b*) Tubercle bacilli are often found in the urine without subjective symptoms or apparent lesions in the urinary organs.

(*c*) Tuberculous lesions in the bladder are often found when the urine shows no tubercle bacilli.

The explanation of the presence of tubercle bacilli in the urine in some cases of genito-urinary tuberculosis and of its absence in others is that the tubercle bacilli are eliminated in "showers," so that it is quite possible to get specimens between the "showers" that are free from tubercle bacilli.

4. Great care is essential in diagnosis of tuberculosis of the kidney, in view of the fact that tubercle bacilli are found in the urine in patients who have neither demonstrable tuberculous lesions of the genito-urinary tract nor symptoms referable to the urinary organs.

"When is a kidney tuberculous?" In the light of these researches and of the reports of other observers (Rist and Kindberg), we can no longer say that the presence of a few tubercle bacilli in the urine shows tuberculosis of the kidney. In former times, before the refinements of diagnosis now available were at our disposal, the argument that a tuberculous kidney must be removed had some basis of good reason, because a diagnosis of tuberculosis of a certain kidney was not made, as a rule, till the kidney was badly injured. Now, the *finding* of a few tubercle bacilli in the urine from a certain kidney is not sufficient to condemn that organ on the one hand, and on the other hand, the second kidney may show tubercle bacilli in its urine, at the next examination.

1847 Madison Avenue.

Whale Fat.—In Denmark whale fat has been used for margarin since 1914, and Norway is now making experiments with hardened whale fat on account of the shortage of other materials for the margarin industry, according to *Commerce Reports*, February 2. Whaling off the coast of Norway is to begin for government account with the idea of supplementing the fat supply from this source. In 1914 Denmark used 20,000 barrels of hardened whale fat for making margarin, and the product made from it is said to keep well and taste well and to be even better in the form of lard. Different percentages of vegetable oil, such as cottonseed and soya bean, are used to make the lard of the proper consistency. In Denmark, where these products have been used three years, no results deleterious to the human organism have been observed.

A METHOD OF DRAINING THE BODIES OF THE VERTEBRAE

PRELIMINARY REPORT

LEO MAYER, A.M., M.D.
NEW YORK

Symptoms suggestive of osteomyelitis of the spine in a case of sepsis due to infection by the *Streptococcus viridans* brought vividly to my mind the necessity of working out some technic by means of which, in suitable cases, the bodies of the vertebrae may be rendered accessible to surgical intervention. A brief review of the literature, as well as a personal conference with Dr. Bradford of Boston, convinced me that, as yet, no satisfactory method had been devised. Although in the instance of the patient in question the local symptoms of osteomyelitis subsided, it seems to me of value to report a method which, on the cadaver, gives an excellent operative exposure.

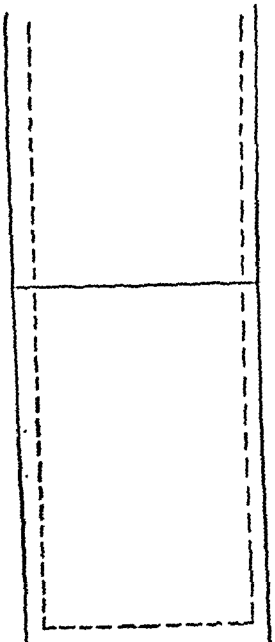


Fig. 1.—The H shaped skin incisions and the line of the hemostatic suture enclosing the muscle flap (dotted line).

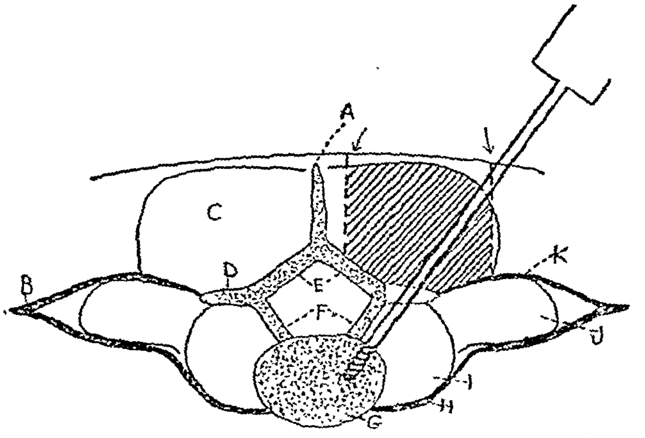


Fig. 2.—Diagrammatic cross section at the level of the first lumbar vertebra, illustrating the principle of approaching the vertebra by the oblique route. The arrows indicate the two longitudinal skin incisions. The shaded area illustrates the muscles which are deflected upward. The resected transverse process is indicated by a dotted line. *A*, spinous process; *B*, lumbar fascia; *C*, spinal muscles; *D*, transverse process; *E*, laminae; *F*, pedicles; *G*, body of vertebra; *H*, anterior layer of lumbar fascia; *I*, psoas; *J*, quadratus lumborum; *K*, middle layer of lumbar fascia.

The method previously used consists of a resection of the transverse process through a midline incision similar to that used in the typical laminectomy (Menard). It is readily seen by reference to Figure 2 that this method does not expose the body of the vertebra, because the lamina and pedicle are in the way. To approach the body, an oblique route will have to be followed which will enable the operator not merely to bring his instrument to bear on the body of the vertebra, but also to see it accurately. This can be accomplished by the following technic, the essential part of which consists in the upward retraction of a wide muscular flap, which permits the operator to work in an oblique line, parallel to the slant of the pedicle:

Assuming that the first and second lumbar vertebrae are diseased, a 6-inch longitudinal incision is made a little to the left of the midline, and at the outer border of the ileocostalis muscle a second longitudinal incision corresponding to the first is also made. These are joined at their midpoint by a transverse incision. The skin flaps are dissected upward and downward, exposing the thick mass of the spinal muscles, that is to say, the multifidus spinae, semispinalis dorsi, iliocostalis and longissimus dorsi. To prevent hemorrhage, a hemostatic suture is now inserted, beginning at the upper outer angle of the wound, running down to the lower angle, across to the spine and upward along the spinous processes. The suture must be taken sufficiently deep to reach the middle layer of the lumbar fascia on the outer side, and the lamina on the spinal side. Corresponding to this suture, a muscle flap is outlined with its base upward, and the entire muscular mass thus freed is drawn toward the head of the patient with strong retractors. This exposes the laminae and transverse processes of the vertebrae in question and the corresponding portion of the middle layer of the lumbar fascia. It is a simple matter now to resect the transverse processes at their base. Working from the outer angle of the wound, the operator's finger can readily free the psoas from the body of the vertebrae. Then, by using an appropriately shaped instrument, he can retract the psoas and the quadratus lumborum, so that he can see the body of the vertebra, and, with a long burr, bore a hole into it and follow up this procedure with a curet.

At this level the nerves are of comparatively little significance and are distinctly smaller than in the lower lumbar region. Even here, however, they can be found and injury avoided, if the operator is careful. After suitable drainage has been instituted, the wound is closed by bringing the muscle flap down into position, suturing it in place and suturing the skin at all points except those at which the drainage tubes emerge. Naturally, their course must be oblique, and they therefore emerge from the outer skin incision.

In the dorsal region the technic is somewhat more difficult because of the ribs, but it is comparatively simple to resect the rib in addition to the transverse process.

41 West Eighty-Third Street.

Reclaiming Surgical Dressings.—The superintendent of the Pennsylvania Hospital at Philadelphia says that 65 per cent. of the surgical dressings used in that institution are reclaimed. Instead of the 200,000 yards of gauze that would have been required in a year, only 55,000 yards were used. The soiled dressings after being collected in paper bags at the bedside or dressing room are taken to the laundry and transferred to net bags and placed to soak in cold water, the water being changed three or four times a day. The next day the net bags are transferred to the sterilizing washer and put through the following steps: two cold water washes without soap or alkali for ten minutes each; forty-five minutes washing in hot water and soap solution; two rinsings in hot water for ten minutes each; after a small amount of hot water is placed in the washer the cylinder is run for forty-five minutes under steam pressure of 12 pounds; after being put through the extractor they are taken while moist to the gauze room where they are stretched, trimmed and prepared for final sterilization.

PROFOUND TOXEMIA AFTER ADMINISTRATION OF NEODIARSENOL (A BRAND OF NEO-ARSPHENAMIN)

J. W. MILLER, M.D.
CINCINNATI

That the administration of the various brands of arsphenamin and neo-arsphenamin are not free from danger is shown by this case:

REPORT OF CASE

A chemist, aged 26, who presented himself for examination and treatment, Dec. 5, 1917, had been exposed to infection eight weeks before. On the appearance of a lesion he reported promptly to his physician, who recognized a syphilitic chancre on the corona glandis. The patient appeared to be in excellent physical condition. The site of the chancre was markedly indurated, and a faint macular eruption covered the shoulders and abdomen. There was general adenopathy, and a positive Wassermann reaction. He received 0.6 gm. of neodiarsenol with absolutely no reaction. One week later, December 12, he reported for a second injection; the site of the chancre showed less induration, and the macular eruption had entirely disappeared; 0.75 gm. of neodiarsenol in 15 c.c. of freshly distilled sterile water was slowly introduced into the vein. He reported next day feeling perfectly well with the exception of a slight headache. The following day, the 14th, he worked as usual in the laboratory of a large manufacturing concern, but told his associates his muscles felt sore, "griplike." On the morning of the 15th he had an epileptiform convulsion and became comatose.

Convulsive seizures continued with intermissions of several hours between the paroxysms for the next forty-eight hours. The respirations were noisy and stridulous, and of the Cheyne-Stokes type. The temperature ranged from 102 to 106 F., and there were profuse sweats. The urine obtained by catheterization amounted to 400 c.c. during the first thirty-six hours. The specific gravity was 1.020; the urine was highly acid, and showed a trace of albumin, diacetic acid, and acetone. Microscopically, blood corpuscles, and hyaline, blood and epithelial casts were found. Complete suppression of the urine finally occurred. The pupils were dilated, and marked retraction of the head to the right was noted. There was a decided increase of spinal pressure, the spinal fluid being Wassermann negative. I ordered epinephrin and Fischer's alkaline solution by rectum as soon as I was notified of the patient's condition. Within a few hours the patient was removed to a hospital, where venesection was performed, 500 c.c. of blood were withdrawn, and then half a liter of Fischer's solution introduced. This was repeated in six hours. Improvement was only temporary, and physiologic sodium chlorid solution was then substituted. Morphin, 0.008 gm., and chloroform inhalations helped to control the convulsive attacks. Death occurred forty-eight hours from the onset of uremic symptoms.

COMMENT

After reviewing the literature relating to similar unfortunate occurrences following the use of various arsenic compounds, I feel certain that the drug was responsible for the fatal outcome. Osler,[1] in writing on acute nephritis, mentions (1) cold, and (2) the poisons of acute specific fevers, as the chief etiologic factors, and further states that "acute nephritis may be associated with syphilis and with acute tuberculosis, particularly the former. Bradford states that many of the idiopathic cases and those incident to cold may be of syphilitic origin." That the patient received his treatments during a period of extremely cold weather, the temperature ranging from zero to 15 degrees below, and was also constantly exposed to toxic agents incident to his occupation, which may have some bearing, must be borne in mind. I agree with Likes and Schoenrich,[2] in speaking of diarsenol, and the same may be said of neodiarsenol, "that the preparation in general is good." They ascribe the accidents to variability in quantity and quality in the occasional ampule, due to careless measurements and chemical construction.

---

[1] Osler, William: The Principles and Practice of Medicine, Ed. 8, New York, D. Appleton & Co., 1912, p. 697.

628 Elm Street.

DUODENAL FISTULAS

DUDLEY W. PALMER, M.D.
Fellow of the American College of Surgeons
CINCINNATI

Scarcity of literature on a medical or surgical subject has, as a rule, one of two meanings: either that the condition is extremely rare, or that the subject has certain unpleasant features connected with it that lead to a perhaps unconscious desire to forget it on the part of the one to whom experience has come. Just how frequently a fistula of the duodenum occurs after suture of a perforation or other operative procedure is difficult to estimate, as there are no reliable statistics available, and such complications are apt to remain unrecorded. Experience gained during apprenticeship, from association and hearsay, and in two personal cases, forces me to conclude that fistulas of the duodenum following operative procedures are neither the rare nor the simple, benign affairs the silence of the professional pen might lead one to conclude. Reference to this subject has almost invariably a pessimistic tone, and but little encouragement is given. Edgerton[1] says, "The result may be a short running, rapidly fatal, duodenal fistula." Pannett[2] says: "As far as can be ascertained from the writings of the last ten years, a duodenal fistula never heals without surgical aid, and if left, is invariably fatal. Moreover, death may be exceedingly rapid. Recovery from a duodenal fistula, even with adequate surgical treatment, is a rarity." At the time of the writing of the lines just quoted, only three "recovery" cases were to be found in the literature of the ten previous years, and these were surgical cures. This behooves us to make greater efforts and a freer interchange of helpful suggestions.

In this paper we are limited to duodenal fistulas because the difficulties encountered in their treatment are peculiar to fistulas so located; the treatment of fistulas is of a rapidly lessening degree of difficulty as they descend the first few feet of the jejunum. This condition of affairs is true for several good and sufficient reasons:

1. Inanition is such as will occur following a fistula in no other part of the intestinal tract, and is comparable in effect to a break in a mill race above the water wheel; no power is obtained.

2. Dehydration rapidly follows unless energetically combated by rectal or subcutaneous injections. This dehydration follows the loss of a large output of fluid in the form of bile (1 liter), pancreatic fluid (0.5 liter), etc., and also the interference with fluid absorption.

3. A marked specific toxic action may follow the systemic absorption of the normal or changed secretions from the uncovered fistulous tract. So little is known of the chemistry of the duodenal secretions that only a surmise is possible as to the presence or absence of a changed secretion in these cases following trauma to the duodenum.

4. The digestive action of the normal secretions has full sway on the duodenal fistula and the tract leading to the surface, to such an extent that the hole shows a progressive enlargement in contradistinction to the behavior of most other intestinal fistulas. Digestion of the skin of the abdomen and back is so rapid and unrelenting as to make the life of the patient a hardship, to himself because of discomfort and pain, and to the nursing force because of the frequency of the needed dressings.

5. The secretions to be controlled are so varied as to render the problem much more difficult than appears at first sight. These are the secretions of the stomach, the liver, the pancreas, and the duodenum itself.

6. Bleeding from the raw surface of the tract may assume alarming proportions.

7. Fat necrosis is sometimes observed in these cases.

8. Extension of peritoneal inflammation may occur, owing to digestion of adhesions.

9. The amount of discharge is out of all proportion to the size of the aperture; this may be due to the sphincteric action of the circular muscle fibers at this location, as described by Ochsner.[3] In view of the foregoing, any methods that have led to a successful issue are of vital interest, in the combating of so difficult and serious a situation.

The treatment of this condition falls into two classes, either the radical surgical interference, or the expectant medical treatment. The surgical method again may be divided into the direct attack on the fistula itself, or an indirect attack on the site of the trouble by some form of a gastro-enterostomy, with or without pyloric exclusion or a jejunostomy. As my two cases come under the second general heading of expectant or medical treatment, I shall not go into the respective merits of the several distinctively surgical methods. Needless to say, they have their advocates and their indications.

The expectant treatment is indicated, provided the patient's general condition will warrant delay, or when the general condition will not permit of radical interference. Surgical intervention, if considered at all, must be made early; one must not be led into waiting until there is no longer sufficient strength to withstand an operation. The expectant treatment has several objects in view: (1) protection of the skin and the tract itself against the digestive action of the secretions; (2) introduction of fluids and nourishment in quantities sufficient to maintain, not only life, but also the reparative power of the tissue; (3) reduction in the amount of gastric and intestinal secretions, and (4) neutralization and dilution of these secretions.

1. The use of a low melting point paraffin applied hot to the dry skin is good; the main point in this application is that the skin must be dry, and this is impossible to accomplish after the epidermal surface has become eroded. Under the latter condition a good zinc oxid lanolin ointment seems to be most efficacious. A solution of pure gum rubber in benzin also forms a satisfactory protective layer. For the tract itself, the

---

[2] Likes, S. H., and Schoenrich, H.: New York Med. Jour., 1916, 104, 64.

[1] Edgerton, F. C., in Johnson: Operative Therapeusis, 3, 618.

[2] Pannett, C. A.: Lancet, London, 1914, 1, 1109.

[3] Ochsner: Tr. Am. Surg. Assn., 1905, 23, 314.

injection of liquid petrolatum and zinc oxid ointment to the bottom of the tract is not only painless, but apparently is of benefit, and liquid petrolatum, because an inert mineral oil, should be given by mouth in large doses so that it may, in part, coat the fistulous tract from within out.

2. So long as the rectum will retain solutions, it is the best portal for the introduction of fluids and nourishment in this type of case, and a 10 per cent. glucose solution with plenty of sodium bicarbonate added to keep the body strongly alkaline, as shown by the urine with a methyl red indicator, is one of the best ways to accomplish one's purpose. A small amount of tincture of opium will aid in the control of rectal spasms. The time may come when food must be given by mouth, and then such foods must be used as produce the least secretory stimulation.

3. The arrival of the acid chyme in the duodenum is the excitant that begins the chain of events ending in the absorption of "secretin," which, in turn, stimulates to activity the pancreas, liver and upper intestinal glands. Interference with this initiatory process decidedly lessens the output of the latter glandular organs. Fats, oils and allied substances have an inhibitory action on gastric secretion, though the fats may have a direct stimulating effect on the pancreas itself. Milk also calls forth but little gastric secretion, while meat extracts, proteosis, dextrin and maltose call into existence large amounts. Low gastric acidity also favors delay in the opening of the pylorus; not only, therefore, must acid food and acid-producing food be avoided, but also alkalies should be given by mouth in frequent small amounts to neutralize as far as possible the gastric acidity. Alkaline solutions, such as calcium hydroxid, sodium bicarbonate, and alkaline mineral waters have a distinctly inhibitory effect on the amount of gastric secretion. Of the drugs, atropin and epinephrin have the greatest inhibitory effect.

4. Dilution and neutralization of the secretions is very desirable, and a slightly alkaline solution permitted to flow slowly to the bottom of the fistula through a rubber catheter, as in a Murphy drip proctoclysis, will effectively do this, and alone probably would be sufficient if perfect protection of the external skin could be accomplished. However, the seepage of even these diluted secretions over the abdomen, sides and back may quickly cause extension of the skin digestion to such a degree as to force the discontinuance of this method. In looking over the literature recently, I find the report of one other case successfully treated by this method of continuous irrigation of the tract.[4] In this case the fistula developed on the fifth day after operation, and was healed six days later. The use of this method is advisable as long as the local skin conditions permit. Large amounts of fluid by mouth also dilute the juices.

The first case was comparatively simple, as the fistula was high in the duodenum, probably several inches above the point of emergence of the bile and pancreatic fluids. The second case, however, must represent the most serious type of duodenal fistula, as the opening was directly opposite the papilla of Vater, and the suture line must have been rather continuously bathed in a fluid of extreme digestive power.

REPORT OF CASES

Case 1.—A man, aged 55, in 1912 underwent a Billroth No. 2 operation, resection of the stomach for cancer. The duodenal stump had been inverted with difficulty, and on the eighth day after operation a full tray was given by mistake. Six hours later intense pain developed, and a discharge of bile and pancreatic fluid came to the surface along the tract of a strip of rubber tissue (no gauze). The abdominal skin digestion was rapid and extensive. Immediately food was withheld by mouth; atropin and sodium fluorid, 1 grain, were given by mouth to inhibit pancreatic activity. Sodium fluorid, 1 per cent., was also used as a wet dressing over the abdomen, and injected along the fistulous tract. Paraffin of low melting point was frequently and freely painted over the skin as a protective coating. The discharge of bile and pancreatic fluids ceased after eight days. The patient left the hospital six days later, with wound and skin thoroughly healed.

Case 2.—A man, aged 74, operated on, April 2, 1917, gave a rather typical history of common duct stone, and the clinical diagnosis was "probably ball valve stone in papilla of Vater." He had lost 60 pounds. A small contracted gallbladder was found, and a stone was lodged in the papilla. Fully twenty minutes were spent in attempting to milk this upward or downward, and probing failed to push it down into the duodenum. Finally the stone was removed by the transduodenal route without great difficulty. The opening into the duodenum was closed with three rows of No. 1 chromic catgut. The gallbladder, duct, and area of duodenal incision were drained with rubber tubes (no gauze). Drainage was only as free as expected for six days, when, after loosening of the tubes to the duodenal area, the character of the drainage suddenly changed, becoming very profuse, causing rapid and extensive digestion of the skin of the abdomen in a few hours.

On the sixth day after operation, food and fluids were stopped by mouth; 10 per cent. glucose and sodium bicarbonate (2 drams to the pint) were given by rectum. Sodium bicarbonate was given in large doses by mouth during the next several weeks. Atropin was continued over several days until the man pleaded to have it stopped. Sodium fluorid, 1 grain by mouth, and as a 1 per cent. irrigating solution in the fistula, was used for four days, without apparent effect. The abdomen was frequently painted with paraffin for protection, with only partial success. The quantity and irritability of the discharge increased, and the dressings were changed every two hours. On two occasions the dressings were saturated with blood, owing probably to the digestive action of the secretions.

On the twelfth day we began continuous drop irrigation of the wound (40 drops to the minute) with soda solution, through a No. 14 catheter, carried down to the depths of the fistula near the common duct. This was continued until the patient's back became so sore through digestive action of the fluid running into the Kelly pad under him that we were forced to discontinue it, even though decided improvement was noted.

On the eighteenth day the patient's condition was very bad, but he was retaining the rectal nourishment splendidly, and this probably was his salvation. Belladonna and epinephrin were now given by mouth every two hours; the glucose and soda were continued by mouth and rectum, and large doses of liquid petrolatum were given by mouth to coat the entire fistulous tract. Several times daily the fistula was plugged to its depth with sterile 5 per cent. zinc oxid. Daily doses of castor oil were given to insure an open intestinal tract. Selected food was frequently given by mouth in small amounts, of such nature as to cause the least amount of stimulation to the gastro-intestinal secretions. This routine was continued, and finally on about the twenty-eighth day the fistula had gradually closed and the skin soon healed. During this time we had to combat a subacute nephritis. Nine months later this man is still perfectly well except for a postoperative hernia at the site of the drainage. He has had no return of stone symptoms, and has gained 58 pounds in weight.

707 Race Street.

---

[4] Cheever, David: Boston Med. and Surg. Jour., 1915, 173, 454.

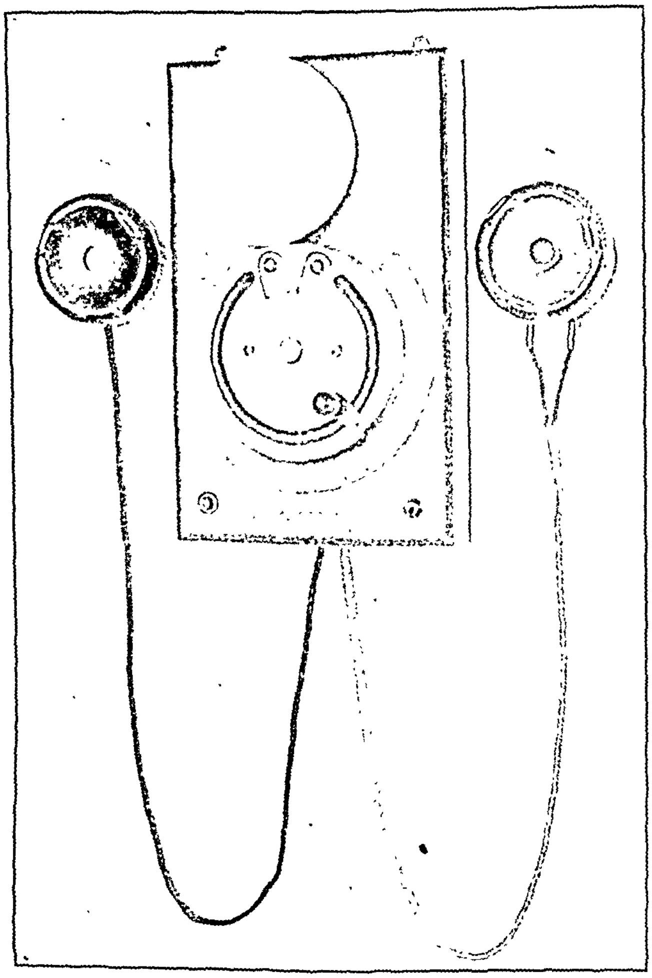
DETECTION OF PRETENDED LOSS OF HEARING

WITH SPECIAL REFERENCE TO UNILATERAL DEAFNESS

R. R. BROWNFIELD, M.D.
PHOENIX, ARIZ.

Aurists have long felt the need of a more accurate test for the acuity of hearing—a test that would be as definite as the ophthalmologist's test for vision. The present war with its prodigal use of high explosives has made the need more keenly felt than ever, and, especially as the damage done to the auditory apparatus is often only temporary, it becomes imperative to have an absolute test to detect those who falsely claim permanent injury purely for the purpose of avoiding further military duty. The necessity for such a test will be even more pressing at the close of the war, when loss of hearing will be either pretended or greatly exaggerated, in order that a pension may be secured.

That the French military specialists have already experienced considerable difficulty in this direction will be evidenced by the statements made by Foy.[1] It appears that the malingerer most difficult to detect is the one claiming complete loss of hearing in one ear. A moment's thought will show why this should be. Were only partial deafness claimed it would not be difficult to trap him, as he could not possibly be consistent in all his statements throughout an extended series of tests; but, with complete unilateral deafness as the claim, he simply and uniformly replies in the negative to all tests applied to the alleged defective ear.



Instrument for testing the acuity of hearing.

After considerable experimenting, I have devised a test which not only definitely determines the acuity of hearing in either ear, but also quickly detects the unilateral malingerer. Before I proceed further, however, it is necessary to describe the instrument used.

It is generally admitted that the acoumeter is the most satisfactory instrument now in use giving direct numerical readings representing the acuity of hearing. This is the instrument used by the French authorities in the tests described in the article referred to. Here a telephone receiver is used to produce the sound, the energy being supplied by the secondary of an induction coil operated by dry cells. As the secondary is withdrawn from the primary coil the sound diminishes, and at the distance of 1 meter it reaches a point at which its perception is taken as indicative of normal hearing. The intervening space is graduated, and forms the scale.

While the French physicians, by the exercise of considerable care and attention, make this device operate with reasonable uniformity and doubtless are securing good results, yet there are so many variable factors involved that it is highly improbable if any two machines under different operators would secure results of approximate uniformity. Thus, there is a continuous and gradual deterioration of the batteries; there is a tendency of the receivers to become more or less demagnetized; and the variable condition of the make-and-break contacts, and the frequency of vibration, also are factors that make uniform results difficult of attainment.

In the device that I use, batteries and make-and-break contacts are entirely dispensed with. The ordinary 110 volt alternating commercial lighting current is used. The variable current is produced by a potentiometer, and is variable from an absolute zero to maximum. No vibrating iron is used, and the maximum strength of current employed is dependent on no factor except *the ratio* of the electrical resistances employed. The sound producer is similar to a telephone receiver except in one very important respect — the core is of soft iron and is not magnetized. This results in eliminating the variability due to demagnetization and doubles the pitch, so that the ordinary 60 cycle current produces 240 vibrations per second—about equal to the average tone used in conversation.

The sound producer is provided with three lugs to hold it away from the ear, so that the sound will be transmitted solely by air conduction. By simply turning the indicator from 100 to zero, one can cause the sound to increase from the point at which it is just perceptible to one of normal hearing, the threshold of audition, or 100 per cent. acuity, to a degree of intensity at which failure to perceive it indicates that the subject has no practical hearing. In addition to the variable receiver, there is a supplementary one that always operates at maximum intensity, irrespective of the loudness of the other.

In the usual test for the acuity of hearing, only the variable receiver is used. As the subject holds this to the ear, the pointer is gradually moved from zero to the 100 point. As the intensity of the sound gradually decreases, he is told to indicate the point at which he is no longer able to perceive it. This point is noted, and the movement of the pointer continued still farther. The direction is then reversed and the subject is directed to indicate the point at which the sound is again heard. After one or two trials, the various readings will be found to harmonize quite closely unless one has a case of malingering, which may be readily detected by inconsistency of the readings. It is hardly necessary to remark that the electric control has a distinct advantage over the watch and whisper tests, as the malingerer is totally unable to guess what reply would be expected from one of defective hearing. The only precaution necessary is to place the instrument back of him. A small push button is provided which may be used to disconnect the receiver, in case the subject is uncertain whether he hears the vibrations or is confusing it with tinnitus.

---

[1] Foy, Robert: La nature, Paris; reprinted in the Scientific American Supplement, June 16, 1917.

Let us now suppose that we are confronted by a subject who has suffered complete but only temporary loss of hearing in one ear due to an explosion, and now uniformly persists in refusing to respond to any test applied to that ear. We simply have him hold the constantly loud receiver over the alleged deaf ear, and the variable receiver over the other. Starting with the pointer at 100 (minimum sound), we gradually move it toward zero and direct the subject to state when he first hears the sound *in his good ear.* If he really suffers complete loss of hearing in one ear, as claimed, the presence of the loud receiver will not disturb him or interfere with the perception of sound by the other ear; in fact, it might just as well be disconnected. Under this presumption he would have no difficulty in clearly detecting the sound in the other ear, and we would soon have a proper index of its acuity. If, however, he is merely pretending and actually has a very fair degree of hearing in both ears, it would be absolutely impossible for him to identify any sound whatever in his good ear to which the variable receiver is applied until a point on the scale is reached that would normally indicate very defective or almost no hearing for the good ear.

The very nature of the test, it will be noted, facilitates the detection of fraud, because the better he can hear in the alleged defective ear, the less will he hear in the other—a condition just the opposite of what he might expect; and so when he makes his usual negative reply, he is for once telling the truth and trapping himself.

Without attempting to enter into the theoretical law of reciprocal auditory responses, it will suffice to state that under these conditions the sound appears to come in some mysterious way from a point at the center of the head; and if the two ears are approximately equal in acuity, there is absolutely no possibility of identifying the gradually increasing sound in the supposedly good ear until a point is reached on the scale away beyond the reading that would be obtained when the loud receiver is disconnected. Hence, in the case of our pretender, we have merely to repeat the test with the loud receiver disconnected; and a totally different and representative reading will be secured, thus proving the deceit.

In case the subject has partially recovered, but will not admit it, this fact may be readily ascertained by a comparison of the two acuity readings for the good ear—one reading to be taken with the loud receiver applied to the defective ear, and a second reading with the loud receiver removed or disconnected. It will readily be seen that the greater difference between the acuity of the two ears, the less difference will there be between the two readings of the good ear. In a case of complete unilateral deafness, this difference will be zero; while with a subject of normal hearing in both ears, the difference will be practically 100.

The inability of the brain to differentiate between the two sources of sound that I use, when one is of lesser intensity, is indeed remarkable in view of the independent action of the ears in other tests. This independence may be readily demonstrated by holding a watch to one ear, while a second watch is gradually moved away from the other ear. It will be found that the loud ticking in the one ear has little or no effect on the ability of the other ear to detect the very faint ticking of the distant watch. And yet in the instrument that I use, the ear to which the sound of lesser intensity is applied loses practically all power of independent perception. The reason for this doubtless lies in the fact that both receivers are not only of identical timber and of absolutely the same pitch, but also are always "in step;" that is, if one diaphragm is moving toward one ear, so also is the other diaphragm moving toward the other ear, and vice versa. This, of course, must necessarily be the case, as the two receivers are operated by the same alternating current, and perfect synchronism is, therefore, unavoidable.

In the article by Dr. Foy, a test for pretended unilateral deafness is given in which "two assistants read, in whispers, two different texts into separate funnels, each connected respectively with an ear of the patient by a rubber tube. The 'monodeaf' man will repeat what is read into his good ear; the simulator of unilateral deafness can repeat nothing; for hearing both texts will confuse him."

I have not been able satisfactorily to verify Dr. Foy's results. This test was made several times with subjects of normal hearing, and in every case it was found possible to avoid the confusion in sound by simply concentrating the attention on one ear. As a proposed improvement, I had constructed a phonograph sound box having two distinct diaphragms and needles, so disposed that one would travel across the record about a quarter of an inch in advance of the other. Two ear tubes were provided, and a speaking record used. In this arrangement, it will be evident, one ear was listening to totally different words from the other, and it was thought that as the unavoidable difference existing between two speakers would be eliminated and as a uniform pitch and rapidity of speech would be secured, the apparatus would be a great improvement on Dr. Foy's method. The results were totally disappointing, however, as persons with normal hearing in both ears apparently had no difficulty in deliberately listening with one ear to the almost total exclusion of the other. Experiments along this line were soon abandoned, as the results were as uniformly disappointing, as those employing the simple harmonic sound were surprisingly successful.

Three Important Sociologic Measures.—For these three important measures—public employment service, extension of accident compensation, and the adoption of workmen's health insurance—there has already been ample preparation and agreement in time of peace. While earnestly sifting new proposals for the after-war reconstruction period, no time should be lost in putting these three well-tested measures into operation.—John B. Andrews, *The Survey*.

THE DUST HAZARD IN CERTAIN INDUSTRIES[*]

T. GRIER MILLER, M.D.
Physician-in-Chief, Clinic for Diseases of Occupation

AND

HENRY FIELD SMYTH, M.D., Dr.P.H.
Acting Director, Laboratory of Hygiene; Hygienist, Clinic for Diseases of Occupation

PHILADELPHIA

No health hazard in industry has attracted so much attention, and rightly so, as dust, and yet few exact studies on its nature and quantitative features have appeared. It is not enough to know only that dust has an influence on health, or even what the resultant pathologic conditions are; it must also be shown how these effects are brought about. In order to approach this problem intelligently, it is of prime importance to appreciate certain things about dust itself, and in this communication are presented briefly the results of investigations on the dusts of various industries. These show the number of particles per unit volume of air and their approximate size, the weight and relative mineral content, the influence of relative atmospheric humidity and of exhaust ventilation on these factors, and the amount that reaches the lungs of those exposed.

The dust samples have been collected directly from the air, at the respiration level, by means of the Palmer apparatus,[1] which is now accepted as a standard by the American Public Health Association, and the determinations have been made by the methods of Palmer, Coleman, and Ward,[2] as modified by Smyth.[3] The chief advantages of this apparatus are that it allows a very large volume of air to be sampled, and that it may be operated continuously over considerable periods of time, both these factors greatly augmenting its accuracy. Arens,[4] in 1894, collected the dust from 200 liters (quarts) of air for his studies; but our results, except where the dust was extremely thick, are based on samples from 200 cubic feet, forty minutes of continuous operation being required for this amount. This period of time is sufficient to allow for ordinary variations in dust production and in the direction and intensity of air currents.

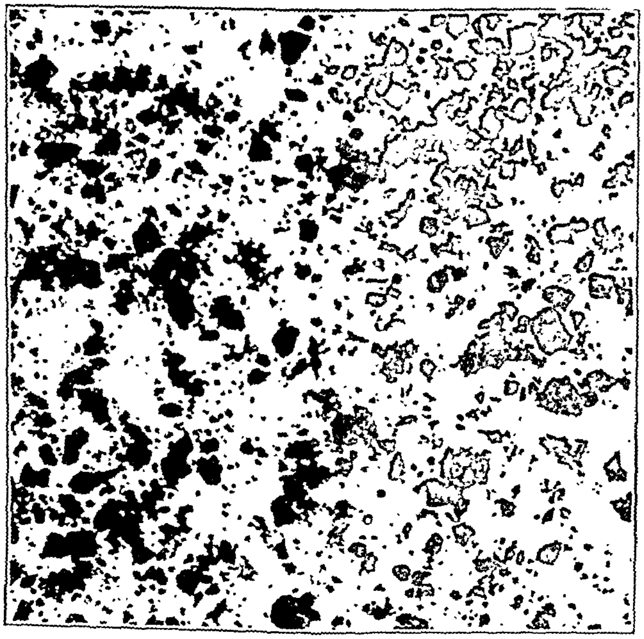


Fig. 1.—Dust collected from the air of the coal grinding room of a cement plant; × 100; appearance after settling in a Sedgwick-Rafter cell; obtained by passing 50 cubic feet of the air through 100 c.c. of distilled water.

STANDARD DUST VALUES FOR PHILADELPHIA

In order to have, as standards, certain dust values with which our results in the industries might be compared, five tests were made outside such establishments, as follows: one each in the country and the city outdoors, one in a country home, and two in city laboratories. Table 1 gives the results of these tests, with averages, and these we have accepted as normal values for Philadelphia and its vicinity. Outdoor country air, the most dust-free examined, showed under 20,000 particles per cubic foot with 2.2 mg. of solids in each hundred cubic feet, and indoor country air under 25,000 particles with 5.4 mg. of solids. Outdoor city air contained about twice as many particles as the latter, with 7.8 mg. of solids, and the laboratory air averaged about six times as many particles with three times the weight. A striking difference is seen in the relative proportion of small and large particles when comparing city with country air, the latter containing relatively fewer of the smallest countable ones. The somewhat low percentage of inorganic material in the laboratory dust resulted partly from an abundance of coal particles which came from a near-by freight railroad and a large power plant stack.

TABLE 1.—RESULTS FROM THE EXAMINATION OF DUST IN COUNTRY AND CITY AIR

Location	Particles				Weight	
	Number per Cu. Ft	Percentage Distribution According to Size* 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
Country						
Outdoors.........	19,600	5	46	49	0.0022	
Indoors...........	24,400	4	55	41	0.0054	
City:						
Outdoors..........	48,400	2	27	71	0.0078	
Laboratory......	123,800	2	25	73	0.0045	31
Laboratory......	150,600	1	24	75	0.0242	36
Average	73,300	3	35	62	0.0088	34

* In this and the succeeding tables, Size 1 refers to the largest observed particles, averaging about 40 microns in diameter, Size 3 to the smallest ones, averaging about 1 micron, and Size 2 to the intermediates.

INORGANIC DUSTS

Portland Cement.—In Table 2 are given the results of tests on eleven dust samples from three Portland cement plants situated in the Lehigh Valley of Eastern Pennsylvania. These are averaged as a whole and also by the presence or absence of exhaust ventilation, departments 33 c, 34 c, and 38 r having such ventilation by means of stacks over the conveyors. No other industry gave results so high in either count or weight, the average being almost 7 million particles per cubic foot and over 0.2 gm. of solids in 100 cubic feet. The number of particles in three tests was appalling, two running over 13 million and one over 15 million, and the lowest count in any of the cement departments was 1¼ million. The highest weights were 0.4928 and 0.4736 gm. The ratio of small to large particles was between the extremes of country and city air. A comparison of the number of particles with the weights in Departments 35 r, 36 r and 37 r shows that while the numbers increase the weights decrease. This is due to a difference in the specific gravity of the dusts and to differences in the sizes of the particles. The percentage of inorganic matter varied from 21 to 90, the dust from the coal grinding room showing the lowest. The averages for the departments with and without exhaust ventilation show clearly that such exhausts effect both a great reduction in the number of particles and in the weight, and also a slight reduction in the percentage of the smallest sized particles.

---

[*] From the Clinic for Diseases of Occupation of the University Hospital and from the Laboratory of Hygiene, University of Pennsylvania.

[*] Read before the Section on Medicine of the College of Physicians of Philadelphia, Dec. 17, 1917.

[1] Palmer, G. T.: A New Sampling Apparatus for the Determination of Aerial Dust, Am. Jour. Pub. Health, 1916, 6, 54.

[2] Palmer, G. T.; Coleman, L. V., and Ward, H. C.: A Study of Methods for Determining Air Dustiness, Am. Jour. Pub. Health, 1916, 6, 1049.

[3] Smyth, H. F.: To be published.

[4] Arens, Carl: Quantitative Staubbestimmungen in der Luft nebst Beschreibung eines neuen Staubfängers, Arch. f. Hyg., 1894, 20, 325.

TABLE 2.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE CEMENT INDUSTRY

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
22 w	Clinker........	13,560,000	3	39	58	0.4928	87
34 c	Clinker........	2,394,400	6	54	40	0.2256	88
38 r	Clinker........	1,872,000	5	20	75	0.0920	70
23 w	Rock..........	9,014,400	1	45	54	0.1332	90
33 c	Rock..........	1,291,200	5	61	44	0.0696	72
37 r	Rock..........	15,524,000	1	32	67	0.3016	85
24 w	Coal..........	4,042,400	3	46	51	0.1240	35
36 r	Coal..........	13,720,000	8	37	55	0.3332	21
25 w	Ball..........	3,244,800	1	41	58	0.0890	78
26 w	Kiln..........	1,641,600	3	46	51	0.0792	65
35 r	Packing.......	8,395,200	2	40	59	0.4736	85
General average...		6,790,900	3	37	60	0.2185	72
Average for 8 departments without exhausts..............		8,642,800	3	38	59	0.2533	71
Average for 3 departments with exhausts.............		1,852,530	5	40	55	0.1291	81

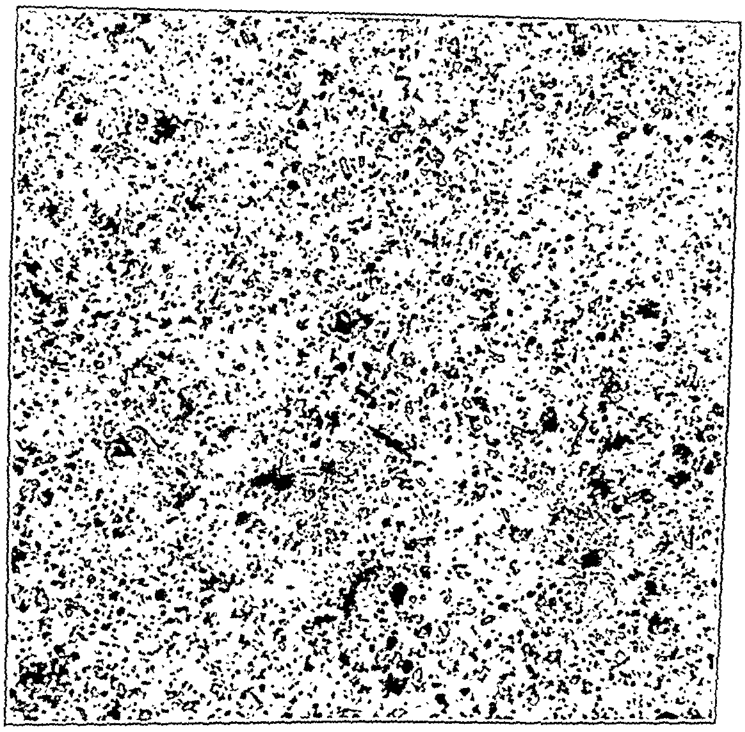


Fig. 2.—Dust collected from the air of the rock grinding room of a cement plant; × 100; appearance in Sedgwick-Rafter cell; amount of dust in 50 cubic feet of the air suspended in 100 c.c. of distilled water.

TABLE 3.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE FLINT INDUSTRY

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
54 e	Ball grinding...	582,400	5	31	64	0.0384	67
55 e	Crushing.......	937,600	3	26	71	0.0464	86
56 g	Ball grinding...	1,120,100	4	36	66	0.0336	76
Average.............		844,040	4	31	65	0.0459	76

Flint.—Three tests were made in two flint mills (Table 3). Unfortunately, the sampling in one mill (54 e and 55 e) was rather unsatisfactory because of a defective electric current, and the results should probably have been *slightly* higher than here recorded. In this plant the crushing, which was *not* protected, generated more dust than the ball grinding, and incidentally the man feeding the crusher was continually exposed. In the other flint establishment (56 g) the crushing mills were enclosed and supposedly protected by strong exhaust suction, but, as sometimes happens, the suction was not detectable, owing to loosened boards in the upper part of the enclosure. The ball grinding drums were enclosed at both mills, as they should be. This dust showed a high percentage of Size 3 particles.

TABLE 4.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE STEEL GRINDING INDUSTRY

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
63 b	Dry ball grinding	1,066,200	6	34	60	0.0840	100
64 b	Oil grinding......	90,000	8	21	71	0.0125	92
47 d	Machine shop....	313,600	9	21	70	0.0304	
Average.............		489,930	7	31	67	0.0433	96

Steel Grinding.—Samples of dust from the emery grinding of steel were taken in a machine shop of a textile mill and in a ball bearing factory, and the results are recorded in Table 4. The most striking fact is the great difference in the figures for the two departments of the ball bearing factory: in the dry grinding department (63 b), where the horizontal emery wheels throw countless particles in every direction and where incidentally the workers have no protection whatever, the figures are high, while in the oil grinding room (64 b), where the process is the same except that the balls run in oil, the count and weight of the dust is reduced to a twelfth and a seventh, respectively, of the former, these figures being practically those of our standard. This is a strik-

TABLE 5.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE ASBESTOS INDUSTRY, WITH AVERAGES SHOWING THE EFFECT OF EXHAUST HOODS

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
57 a	Weaving......	240,800	3	25	72	0.0277	31
58 a	Carding.......	900,800	5	40	55	0.0416	87
66 k	Carding.......	212,800	3	41	56	0.0128	82
65 k	Carding.......	90,400	5	31	64	0.0148	81
59 a	Crushing......	1,163,200	4	36	60	0.0536	76
67 k	Crushing......	356,800	7	57	36	0.0456	81
Average...........		494,100	4	39	57	0.0354	73
Average for departments without exhaust hoods.......		763,300	4	34	62	0.0409	69
Average for departments with exhaust hoods.......		220,000	5	43	52	0.0226	81

ing illustration of the value of wet processes. The dry ball grinding is the only department of the entire series showing dust composed entirely of mineral matter.

TABLE 6.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE POTTERY INDUSTRY

Index Number	Department	Particles: Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Weight: Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
49 l	Glaze dipping..	152,800	8	41	51	0.0144	58
50 l	Jiggering.......	189,000	4	33	63	0.0120	67
51 l	Kiln.............	249,000	4	33	63	0.0200	64
52 m	Pressing........	163,200	4	28	68	0.0072	67
53 o	Pressing........	158,400	4	33	63	0.0084	71
	Average............	182,720	5	34	61	0.0130	66

Asbestos.—Table 5 records the results of six tests in two asbestos fiber weaving mills, the second of which had almost completed the installation of an exhaust system for dust removal. The averages in these two mills show clearly the effect of such dust removal, not only in lessening the number of particles and the weight of the dust, but also in decreasing the percentage of the smallest sized particles.

Crushing is seen to be the dustiest process, and it is also the most difficult to guard properly. The crushing room that did not have a suction system (59 a), with over 1 million particles per cubic foot, ranked next to the cement departments in dustiness, and above any of the steel or flint departments, and the carding room in the same mill (58 a) was not far behind. The percentage of inorganic matter in this dust varied from 31 to 82.

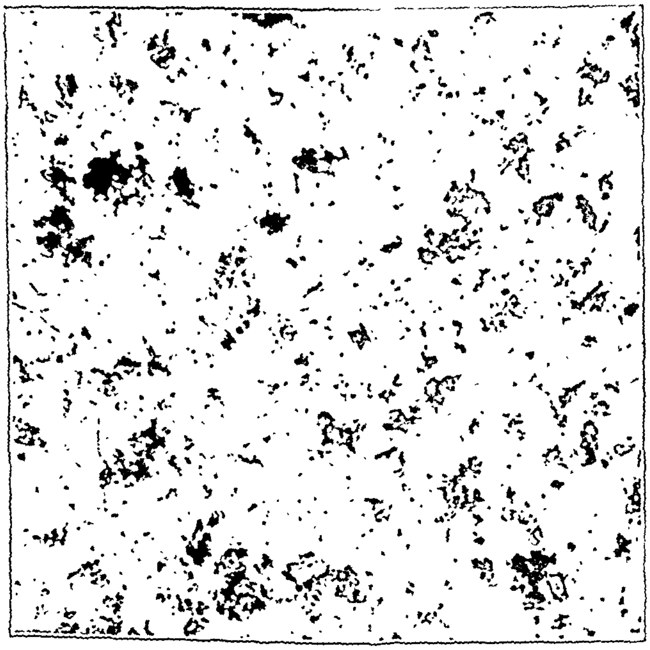


Fig. 3.—Dust collected from the air of a flint grinding mill; × 100; appearance in Sedgwick-Rafter cell; amount of dust in 200 cubic feet of the air suspended in 100 c.c. of distilled water.

Potteries.—Table 6 gives the results of five dust tests in three potteries located in Trenton, N. J. These are the lowest figures shown by any of the inorganic industries, the highest count being under 300,000. The latter (51 l) was in a kiln room where tableware was being packed in saggers with powdered flint, and this packing was done in especially constructed boxes with strong exhaust suction at the rear. With the exception of this one department, there was very little variation in the counts in this industry, though there was considerable difference in the weights. The relatively high weight, in proportion to the count, in the glaze dipping room was due to 8.6 per cent. of lead in this dust, a somewhat lower percentage than in the glaze itself. Calculations show that the workers here inhale at most under 2 mg. of lead a day. The percentage of smallest particles here was somewhat less than in the flint mill tests.

ORGANIC DUSTS

Plush, Blanket and Carpet.—Thirteen tests were made in three divisions of a large textile mill making silk and mohair plush, woolen blankets, aeroplane wing cloth, and carpets (Table 7). The wool breaking room (33 d) in the carpet factory showed by far the worst organic dust conditions encountered, with 430,000 particles, little less than in the best flint mill test, and with 0.39 gm. of solids, exceeded only by the three highest tests in cement. It so happens also that this dust is peculiarly harmful, because as the raw, unwashed wool is fed to the breaker, much of the dirt from it is blown directly back into the face of the feeder. Another equally harmful dust tested in this mill, which gave a lower count and weight but a decidedly higher percentage of mineral matter, was that in the rag picking room (43 d), where filthy woolen rags of all descriptions are fed by hand into a shredding machine. The shredded material is blown into a supposedly closed room, but the door is left open, allowing the fine shreds and dust to escape into the main room; and furthermore, at intervals, the operative enters the enclosure and brings out the material by the double armful to bale on the open floor. In so doing he is exposed to much more dust than the results of the test, taken near his station when he is feeding the machine, would indicate. In general, plush mill dusts gave higher counts than carpet mill dusts, but one weaving room (29 d) gave a very low test (under 77,000 particles), little more than one third of the count in the other plush weaving room. Tests in the blanket mill gave remarkably low counts, owing to greater cleanliness and also to the use of wet processes, the bobbins being loaded with steamed thread. Thus again is seen the value of wet processes. All tests in these three mills showed more or less mineral matter in the so-called organic dust, from 17 per cent. in the wool breaking (33 d) to 68 per cent. in a plush weaving room (29 d). Some of the mineral matter in the dust from the weaving rooms is no doubt due to the wear and tear of the machinery.

TABLE 7.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE BLANKET, PLUSH AND CARPET INDUSTRY

Index Number	Department	Particles: Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Weight: Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
29 d	Plush weaving...	76,600	3	41	56	0.0148	68
30 d	Plush finishing...	130,800	6	18	76	0.0180	31
31 d	Plush shearing...	195,600	4	27	69	0.0252	67
32 d	Plush tiger.......	150,400	6	34	58	0.0220	29
40 d	Plush weaving...	208,000	12	11	77	0.0576	44
41 d	Blanket weaving.	,48,000	17	37	46	0.0272	41
42 d	Blanket napping.	97,500	13	23	64	0.0160	55
33 d	Wool breaking...	430,000	7	29	64	0.3904	17
43 d	Rag picking......	110,400	16	22	62	0.0226	45
44 d	Wool carding....	103,400	27	15	58	0.0240	33
45 d	Carpet finishing..	124,800	5	17	78	0.0116	62
46 d	Carpet weaving..	149,600	11	37	52	0.0112	60
48 d	Wool breaking...	112,000	13	24	63	0.0144	22
	Average.............	148,950	11	24	65	0.0504	44

Felt Hat.—Only three tests in a hat factory were made, all in departments handling unfelted fur (Table 8). They show fair conditions, with no very high count, and the decreasing percentage of smallest particles shows the effect of brushing and blowing in cleaning the fur before forming. Lower counts in the brushing and forming departments are doubtless partly due to increased humidity. The highest count is seen in the most dangerous process, fur cutting (60 s), where the fur is full of dried "carrot" (mercury acid nitrate), this being put on to aid in the felting process, and the dust here is liable to cause mercurial poisoning.

TABLE 8.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE FELT HAT INDUSTRY

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
60 s	Fur cutting....	153,100	2	28	70	0.0160	30
61 s	Fur blowing....	133,600	8	32	60		
62 s	Forming.......	91,360	3	42	55	0.0176	48
	Average for the 3 departments......	126,020	4	33	63	0.0168	39

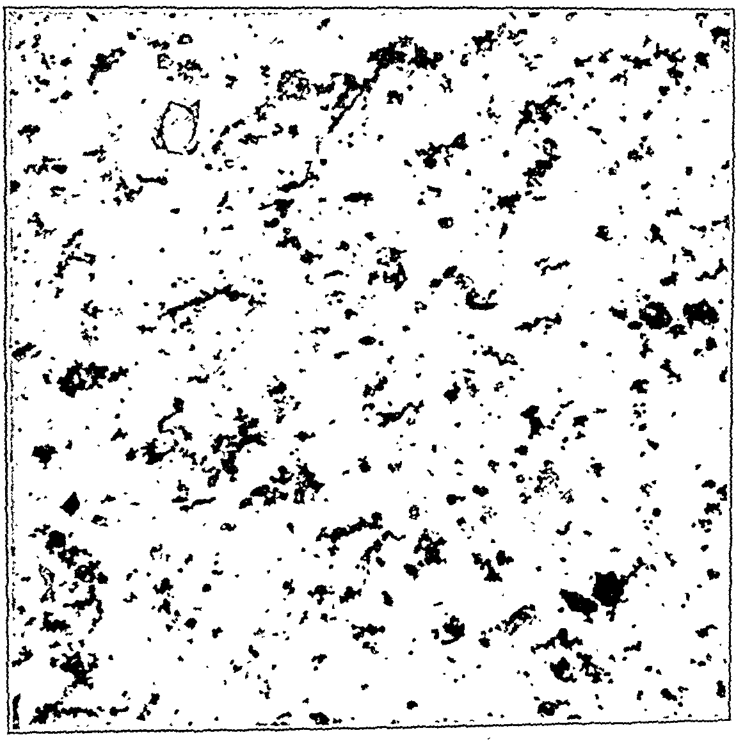


Fig. 4.—Dust from the air of the dry grinding department of a steel ball bearing plant; × 100; appearance in Sedgwick-Rafter cell; the dust of 200 cubic feet of the air suspended in 100 c.c. of distilled water.

TABLE 9.—AVERAGE RESULTS OF DUST EXAMINATIONS IN NINETEEN DEPARTMENTS OF SIX CIGAR FACTORIES

Department	Number Studied	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
Banding.......	3	25,000	8	46	46	0.0055	55
Packing.......	5	61,600	5	50	45	0.0036	45
Stripping......	3	90,500	6	40	54	0.0088	30
Hand cigar making......	2	90,200	8	49	43	0.0075	
Casing.........	1	164,200	2	55	43	0.0086	77
Machine cigar making......	3	216,500	6	44	49	0.0069	
Stock.........	2	235,000	7	48	45	0.0104	71
Average....	19	102,600	6	47	47	0.0084	56

Cigar.—The results of our nineteen tests in cigar factories have been reported elsewhere;[5] hence only the averages in the different departments are given here (Table 9). While in general these tests show comparatively little dust, yet two counts of over 300,000 particles were made, and one test gave a weight of 0.017 gm. The somewhat high inorganic content of the dust is doubtless due to sand, which is invariably associated with tobacco, and to the wear of the machinery.

TABLE 10.—RESULTS FROM THE EXAMINATION OF DUSTS IN THE SILK INDUSTRY

Index Number	Department	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
27 q	Weaving.......	109,800	15	2	83	0.0040	60
28 q	Winding........	64,200	32	3	65	0.0050	40
	Average for the 2 departments......	87,000	23	3	74	0.0045	50

Silk.—Two tests were made in a model silk factory, and Table 10 shows that these gave results averaging better than in any other industry, and exceeded only by country air and a few individual tests in cigar factories. This was due to extreme cleanliness and to artificially increased humidity. The inorganic content of this dust averaged 50 per cent.

TABLE 11.—SUMMARY OF AVERAGES OF DUST EXAMINATION RESULTS FOR THE SEVERAL INDUSTRIES, GROUPED ACCORDING TO THE INORGANIC OR ORGANIC NATURE OF THE DUST

Industry	Number of Tests	Particles				Weight	
		Number per Cu. Ft.	Percentage Distribution According to Size 1	2	3	Per 100 Cu. Ft., Gm.	Per Cent. Inorganic
Inorganic Group							
Cement....	11 (2)	6,790,900	3	37	60	0.2185	72
Flint.......	3 (2)	844,040	4	31	65	0.0459	76
Steel.......	3 (2)	489,930	7	31	62	0.0433	96
Asbestos...	6 (2)	494,100	4	39	57	0.0354	73
Pottery....	5 (3)	182,720	5	34	61	0.0130	60
Average..	28 (11)	1,777,970	4	37	59	0.0717	76
Organic Group							
Blanket.... Plush...... Carpet.....	13 (3)	148,950	11	24	65	0.0504	27
Hat........	3 (1)	126,020	4	33	63	0.0168	39
Cigar......	19 (6)	102,600	6	47	47	0.0085	56
Silk........	2 (1)	87,000	3	21	76	0.0045	50
Average..	37 (11)	116,190	6	31	63	0.0201	42
Standard							
Average....	5 (4)	73,360	3	35	62	0.0088	34

SUMMARY OF AVERAGES

Table 11 gives a general summary of the averages for the several industries, grouped according to the organic or inorganic nature of the raw material used. A remarkable uniformity in the percentage of different sized particles in all the tests is observed. It will be seen that the dustiness is much greater in the inorganic class, and that, although the percentage of inorganic material is naturally greater in this group, yet the so-called organic dusts show a mineral content averaging 42 per cent.

---

[5] Smyth, H. F., and Miller, T. G.: A Hygienic Survey of Cigar Manufacturing in Philadelphia, Med. and Surg., 1917, 1, 698.

EFFECT OF HUMIDITY

In forty instances in which dust tests were made, relative humidity readings were taken at the same time with a sling psychrometer, and Table 12 shows that as the humidity increases the percentage of the larger particles decreases, the minute ones correspondingly increasing. Table 13 shows the effect of increases in humidity in individual industries, indicating, in general, a tendency to lessening of the total dust count. This is naturally more marked with the more hygroscopic dusts.

TABLE 12.—EFFECT OF HUMIDITY ON THE SIZE OF DUST PARTICLES

Relative Humidity	Number of Tests	Percentage Distribution of Particles by Size		
		1	2	3
From 35 to 39..........	4	7	36	57
From 40 to 49..........	15	8	36	56
From 50 to 59..........	11	6	34	60
From 60 to 69..........	8	5	33	62
As humidity increases..............		Decreases	Decreases	Increases

TABLE 13.—EFFECT OF INCREASES IN HUMIDITY ON THE TOTAL DUST COUNT IN SEPARATE INDUSTRIES

Industry	Number of Tests	Effect on Total Count
Plush....................................	5	Irregular
Blanket..................................	2	Decreased
Carpet....................................	4	Irregular
Cigar......................................	9	Decreased
Hat...	3	Irregular
Pottery...................................	4	Decreased
Asbestos.................................	6	Decreased

TABLE 14.—AVERAGE AND MAXIMUM WEIGHTS OF DUST IN THE VOLUME OF AIR INHALED BY A WORKER IN VARIOUS INDUSTRIES, WITH ESTIMATIONS OF THE AMOUNT REACHING THE LUNGS

Industry	Tests	Weight of Dust in Air Inhaled by a Worker		Estimated Amount Reaching the Lungs in a Year of 300 Days, Gm.	Estimated Number of Years Required *for* 1 Pound to Reach the Lungs
		Per Day *of 8 to 10* Hours, Gm.	Per Year of 300 Days, Gm.		
Portland cement.	Average of 11	0.4559	146.77	45.59	10.9
	Maximum....	1.0644	310.82	106.44	4.7
Carpet............	Average of 6.	0.1420	42.60	14.20	35.0
	Maximum....	0.7027	210.81	70.27	7.08
Steel grinding....	Average of 8.	0.0661	25.83	8.61	57.0
	Maximum....	0.1599	47.97	15.99	31.0
Flint grinding....	Average of 3.	0.0663	19.89	6.63	
	Maximum....	0.0829	24.87	8.29	60.0
Asbestos..........	Average of 6.	0.0573	17.19	5.73	
	Maximum....	0.1161	34.83	11.61	45.0
Plush.............	Average of 5.	0.0495	14.85	4.95	
	Maximum....	0.1037	31.11	10.37	48.0
Blanket...........	Average of 2.	0.0389	11.67	3.89	
	Maximum....	0.0490	14.70	4.90	
Felt hat..........	Average of 2.	0.0242	7.26	2.42	
	Maximum....	0.0253	5.06	2.53	
Pottery...........	Average of 5.	0.0187	5.61	1.87	
	Maximum....	0.0288	8.64	2.88	
Cigar.............	Average of 18	0.0147	4.41	1.47	
	Maximum....	0.0291	8.73	2.91	
Silk..............	Average of 2.	0.0081	2.43	0.81	
	Maximum....	0.0090	2.70	0.90	

WEIGHT OF DUST INHALED AND REACHING THE LUNGS

From our data, calculations were made of the amount of dust in the air inhaled by the various workers in a day. These estimates were based on the assumption of 30 inches of tidal air per respiration, and of 18 respirations per minute, this giving approximately 18 cubic feet per hour. From these results, further estimations were made of the amount of dust contained in the air inhaled per working year of 300 days, and of the amount that would reach the lungs. Lehmann and his co-workers[6] found that from 35 to 42 per cent. of inhaled white lead dust reached the lungs, and so we figured on at least one third of the various inhaled dusts gaining entrance. Table 14 gives our calculations based on the average and the maximum tests in each industry, and in a few instances records the time that would be required for 1 pound of dust to reach the lungs. Table 15 gives corresponding results for city and country air. From the former table it will be seen that the average cement worker inhales almost a half gram of dust a day, and that over 45 gm. reach the lungs each year, less than eleven years being required for 1 pound to gain entrance. A worker in the dustiest room inhales over 100 gm. a year, and takes in 1 pound in less than five years. The average carpet mill worker inhales 0.142 gm. daily, but the feeder of the wool breaker takes in over 0.7 gm., and the latter would receive a pound in a little over seven years. The steel ball bearing grinder would take thirty-one years to secure a pound, and in none of the other of these industries would so much

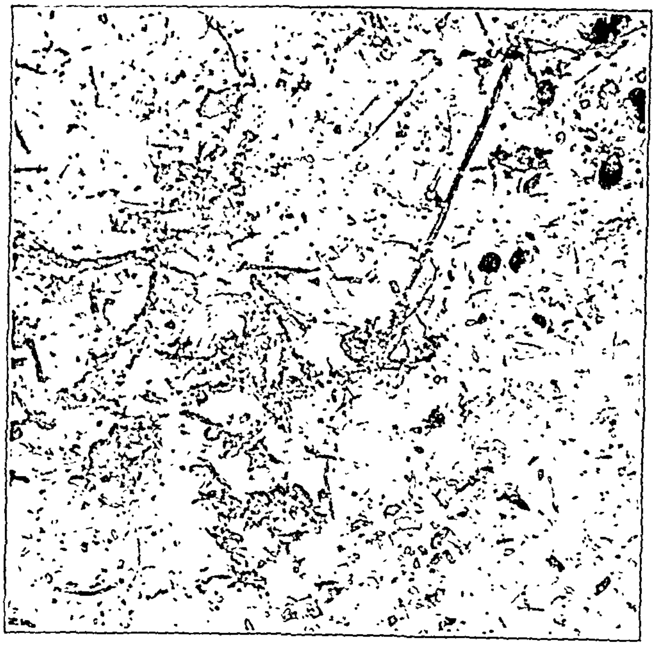


Fig. 5.—Dust collected from the air of an asbestos factory; × 100; appearance in Sedgwick-Rafter cell; the dust of 150 cubic feet of air suspended in 100 c.c. of distilled water.

TABLE 15.—AVERAGE AND MAXIMUM WEIGHTS OF DUST IN THE VOLUME OF AIR INHALED BY AN INDIVIDUAL OUTDOORS AND INDOORS IN PHILADELPHIA, WITH ESTIMATIONS OF THE AMOUNT REACHING THE LUNGS

Location	Tests	Weight of Dust in Air Inhaled by an Individual		Estimated Amount Reaching the Lungs in a Year of 365 Days, Gm.	Estimated Number of Years Required for 1 Pound to Reach the Lungs
		Per Day of 24 Hours, Gm.	Per Year of 365 Days Gm.		
Indoors........	Average of 3...	0.0492	17.96	4.92	100.0
	Maximum......	0.1045	31.35	10.45	48.0
Outdoors......	Average of 2...	0.0299	10.92	2.99	
	Maximum......	0.0503	15.09	5.03	99.0

---

6. Lehmann, K. B.; Saito, Y., and Gfrörer, Walter: Ueber die quantitative Absorption von Staub aus der Luft durch den Menschen, Arch. f. Hyg., 1911-1912, 57, 152.

be taken in during the average working life of an employee. These amounts would be much increased, however, in workers with any form of nasal obstruction, since Lehmann found that in mouth breathing 80 per cent. of inhaled dust reached the lungs. Arens[4] calculated that a cement worker would inhale 1.12 gm. of dust a day, a foundryman 0.14 gm., a wool worker 0.1 gm. and a schoolboy 0.0024 gm., these figures comparing fairly well with those here reported.

VARIATIONS IN DUSTINESS

These tests cannot show all the variations that are likely to occur in dust production; but in any study of the dust problem this factor must not be overlooked entirely. Some of our impressions will therefore be recorded. In the dustiest industry included in our survey, cement manufacture, no appreciable variations were suspected except in the packing department. In the flint mills the production was constant in the crushing department, but in the ball grinding department it was greatly increased when the cylinders were charged or emptied; at no time, however, was the air even comparatively free from dust. In the asbestos mills, no appreciable variations were probable. In the pottery kiln room, dust was an appreciable factor only when saggers were being packed or emptied. Elsewhere in the potteries, conditions were more uniform. In the machine shop and the ball bearing grinding room, there were intervals of comparative quiet and of a decrease in dustiness around each machine. Much more variation in dust production occurred in the textile mills and other factories producing organic dusts.

CONCLUSIONS

A study of dust samples taken directly from the air, at the respiration level, of sixty-five departments of twenty-two plants, representing five industries dealing with inorganic and four with organic materials, has given rise to the following conclusions:

1. For a complete understanding of the problem of dust in industry, there must be considered not only its weight, but also the number of the particles, their nature, whether organic or inorganic, and their percentage distribution according to size.
2. The order of the industries studied in regard to dustiness, as determined by weight, was (1) Portland cement; (2) plush, carpet and blanket; (3) flint grinding; (4) steel grinding; (5) asbestos; (6) felt hat; (7) pottery; (8) cigar, and (9) silk.
3. The order as determined by the count of particles was the same except that (1) the asbestos, (2) the plush, carpet and blanket, and (3) the felt hat industries were given lower positions; this was largely due to the presence of fibers in these dusts which it was impossible to include in our counts.
4. The so-called organic dusts were invariably composed of both organic and inorganic materials, and the latter ingredient may account for the harmful influences which have been attributed to certain of these dusts.
5. The organic dusts averaged less than the inorganic dusts both in weight and in count of particles.
6. The percentage distribution of the different sized particles was curiously similar in all the samples, and it may be assumed that approximately half of all dust particles, that are countable by the method here employed, are about 1 micron in greatest diameter, the others ranging up to about 40 microns.
7. Dust removal at the point of production not only greatly decreases air dustiness, but particularly removes the smaller particles.
8. The substitution of wet processes for dry ones effectively lessens air dustiness.
9. Air dustiness varies inversely with relative atmospheric humidity, as does also the percentage of the larger dust particles.

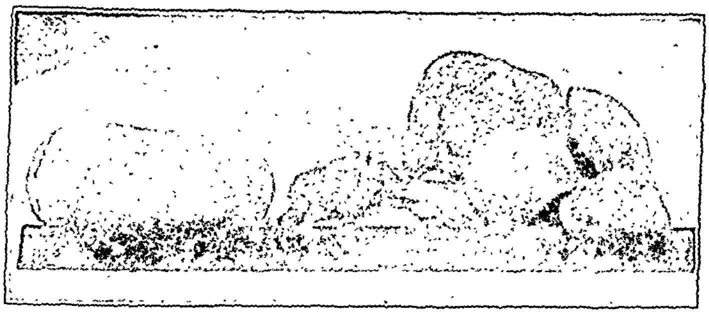
Clinical Notes, Suggestions, and New Instruments

AN UNUSUALLY LARGE VESICAL CALCULUS

H. M. McCandliss, M.D., and Nathaniel Bercovitz, M.D., Hoi How, Hainan, China

Oct. 30, 1917, a man aged 31, entered the hospital complaining of great pain on urination, with pain over the bladder. The patient had been in this condition for over ten years, gradually getting worse. When he came to the hospital, he could not stand erect on account of the pain.

The man was emaciated, and his face and body were covered with pit marks of old smallpox. A sound introduced into the urethra met at the neck of the bladder a solid, immovable body. This could be palpated 2 inches above the pubes. The urine showed an intense cystitis. An incision was made above the pubes almost to the urbilicus and the bladder, which was distended with boric acid solution and opened. A large irregular stone was disclosed which was found to be impacted. Efforts to dislodge it proved fruitless, and finally a hammer and chisel were used to break it into fragments.



Fragments of calculus.

An outer shell from three-fourths to seven-eighths inch in thickness was first broken through anteriorly and removed. The nucleus of the stone, 2 inches long, 1½ inches wide, and 1 inch thick, was then removed. The posterior portion of the shell was now dislodged and removed. A mass of small fragments and débris was removed, and the bladder thoroughy irrigated, although a considerable amount of "sand" was adherent to the walls of the bladder and the edges of the wound. A catheter was introduced, and a large rubber tube drain left in the suprapubic opening, the incision being closed in the usual manner.

After thorough drying, the fragments that were recovered weighed 385 gm. It was found impossible to reconstruct the stone, but the accompanying illustration of the fragments gives an idea of its size.

The postoperative history has been uneventful, and at the date of writing (November 21), the suprapubic opening is almost closed. How many stones heavier than this one have been reported?

American Presbyterian Hospital.

Great Nations.—The greatness of a nation is to be judged by the number of the great men it has produced.—Keen.

Military Medicine and Surgery

SIMPLIFIED RULES FOR TUBERCULOSIS EXAMINATIONS

HENRY FARNUM STOLL, M.D. (HARTFORD, CONN.)
Major, M. R. C., U. S. Army; Instructor in Tuberculosis Examinations, Army Medical School; Tuberculosis Specialist, Walter Reed General Hospital
WASHINGTON, D. C.

In my instruction at the Medical Officers Training Camp at Fort Benjamin Harrison, and more recently at the Army Medical School, emphasis has been placed on certain points which seem especially essential to the thorough examination of the lungs. While none of these points are original, they do not appear to be so widely appreciated as their importance warrants.

These essentials I have arranged in groups of three in the hope that this will make it easier to remember them.

Because of lack of time, examinations in the Army must be made rapidly; but if systematically done, they will also be thorough. Therefore (1) system, (2) rapidity and (3) thoroughness characterize the work, the motto being "A maximum amount of information in a minimum of time."

ESSENTIAL POINTS

Always compare corresponding areas in.....	1. Inspection. 2. Percussion. 3. Auscultation.
For inspection, subject must	1. Sit erect. 2. Relax shoulder muscles. 3. Face the light.
One should look for....	1. Retractions (apical and over the hila). 2. Diminished expansion. 3. Lagging.
Signifying, respectively..	1. An old process. 2. An extensive process or adhesions. 3. Active disease.
For percussion one should	1. Exert very firm pressure with finger placed parallel with the ribs. 2. Employ a very light uniform stroke. 3. Percuss from below upward.
To study the breath sounds, the subject....	1. Breathes very quietly (mouth open). 2. Slightly more deeply. 3. Slightly more rapidly.
Be sure to............	1. Note character of inspiration. 2. Length and pitch of expiration. 3. Study of the whispered voice.
Remember that normally at the right apex.....	1. Tactile fremitus is increased. 2. Percussion note is less resonant. 3. Expiration is somewhat prolonged and raised in pitch.
Activity is indicated by râles best elicited thus	1. Expire forcibly. 2. Cough. 3. Inspire (moderately). (Save time by illustrating method.)
The characteristic râles are subcrepitant.......	1. Heard immediately after the cough at the beginning of inspiration. 2. Usually persist through the whole of inspiration. 3. With less active lesions, are heard only in the first part of inspiration; sometimes only during the cough.
Of especial significance are râles that are.....	1. In showers. 2. Localized. 3. Persistent.
They should be sought for with particular diligence in the........	1. Supraspinous fossae. 2. Supraclavicular space ((*a*) inner, (*b*) middle, (*c*) outer portions). 3. First interspace near sternum.
Do not mistake for the râles of tuberculosis..	1. The inconstant apical râles at the end of forced inspiration. 2. Sternoclavical crackles. (Hold breath, rotate shoulder.) 3. Sternal and muscle sounds.
Do not consider tuberculosis the fine râles ("marginal sounds") heard over the lower lobes, especially in the anterior axillary line..	1. They are crepitant. 2. Begin in the middle of inspiration and attain their maximum at the end. 3. Dissipated by deep breathing.
Remember that..........	1. Lesions of apexes are usually tuberculous. 2. Lesions of base alone are usually not. 3. The most common cause of bronchovesicular breathing is noisy nasal respiration.
In military work.......	1. Make diagnosis for physical signs rather than symptoms. 2. Do not overlook the extensive but inactive lesions (retraction, dulness, breath changes, *no râles*). 3. Do not overlook small active lesions (no retractions, dulness or breath changes, *but râles*).
To minimize mistakes...	1. Reexaminations. 2. Sputum and roentgen-ray examinations. 3. Temperature and pulse records.

FURTHER EXPERIENCES WITH DAKIN'S DICHLORAMIN-T IN THE TREATMENT OF WAR WOUNDS*

J. E. SWEET, M.D., (PHILADELPHIA)
Major, M. R. C., U. S. Army
AND
EDWARD B. HODGE, M.D., (PHILADELPHIA)
Captain, M. R. C., U. S. Army
FRANCE

In a previous report[1] on the use of Dakin's dichloramin-T in the treatment of war wounds, the simplicity of the technic, the great saving of pain, and the economy of time and surgical material were pointed out. We now present the results of a more extended experience with this antiseptic. We shall limit our report to our own service, although the same method has been used to a greater or less extent on the other three surgical services of this hospital and in an adjoining hospital.

We shall present the total number of the severe cases treated, classified in a general way. We shall discuss only our surgical failures, leaving the reader who is familiar with the conditions under which we are working to judge. Let it be stated for the reader not familiar with these conditions that our material is in no sense whatever chosen. It does not reach us within the first twenty-four hours, and the more important cases have all been surgically treated elsewhere; we take the wounds as they come, some clean, some infected, some foul. Wounds clean when they come to us stay clean; the infected and the foul wounds clear up, with the failures detailed below. As we are working in a general hospital, the length of time required for complete healing cannot be given; the patients remain here only until they are in condition fit for evacuation.

---

* From 16 (Philadelphia, U. S. A.) General Hospital, B. E. F.
[1] Sweet, J. E.: Brit. Med. Jour., 1917, 2, 249.

From July 7, 1917, until Oct. 25, 1917, we have treated in our own service, among other wounds, 680 cases of wounds of a severity sufficient to require evacuation to England. Of these, 30 were amputation stumps (not including amputations distal to wrist or ankle); 94 were compound fractures of the upper extremity, of which 40 were compound fractures of the humerus; 78 were compound fractures of the lower extremity, of which 27 were compound fractures of the femur; 31 were severe buttock wounds; 131 were severe wounds of the upper extremity, without fracture; 200 were severe wounds of the lower extremity, without fracture; 34 were severe flesh wounds of the back; 82 were severe miscellaneous wounds (head, face, neck, etc.).

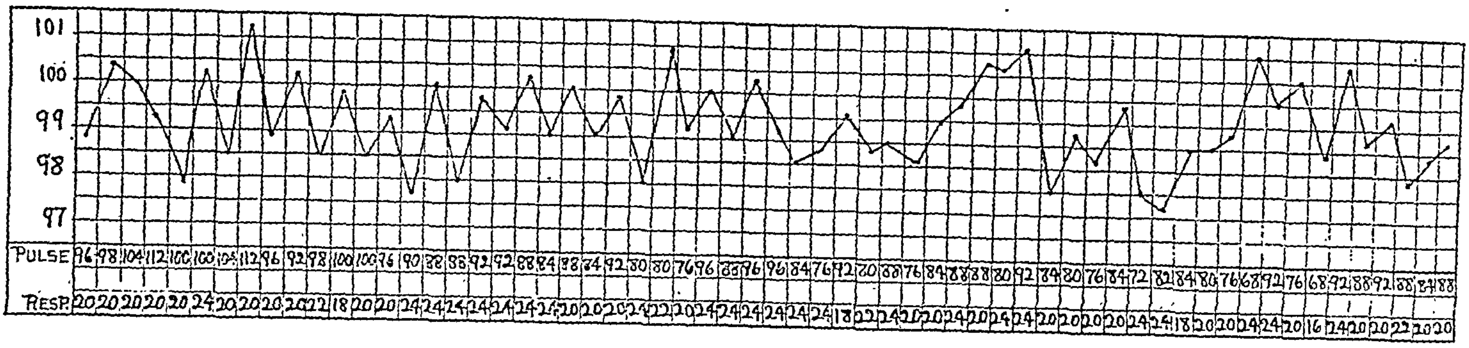


Chart 1.—Temperature, pulse and respiration chart for the first four weeks after admission of Private W. (2756), with a compound fracture of the femur involving the knee joint.

From the standpoint of the theory of surgery, loss of life, or limb, or the endangering of life or limb by long continued sepsis and by secondary hemorrhage are failures.

We have lost twelve patients. Two died of anaerobic septicemia, and both were dangerously ill on admission. Two died from infected foreign bodies in the brain. One died of septic peritonitis six hours after admission. One died from bronchopneumonia twenty-four hours after admission. Two died of traumatic meningitis, from penetrating injuries of the lumbar portion of the spinal canal. One died of traumatic meningitis of the lower cord, from penetrating wound of the fourth lumbar, with epidemic cerebrospinal infection of the meninges of the brain. One died of septicemia, starting from a penetrating wound of the sacro-iliac joint, symptoms appearing twenty-four hours after admission. One died of pyemia, with abscesses in the lungs, starting from a compound comminuted fracture of the head and neck of the left femur. One died of edema of the lungs, with septicemia, membranous laryngitis, pharyngitis and tracheitis, probably a streptococcic throat infection that was independent of the wounds. These are condensed reports of the postmortem finding of the pathologist.

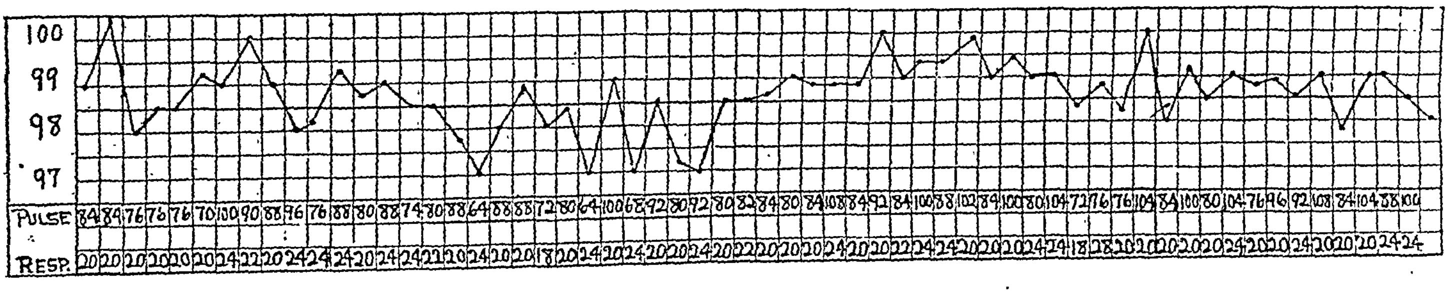


Chart 2.—Temperature, pulse and respiration chart for the first four weeks after admission of Private H. (29399), with a compound fracture of the femur.

We have performed two amputations; in both instances patients were admitted with symptoms of simple gangrene due to the destruction of the vessels of the leg by shrapnel.

By long continued sepsis we mean the course so familiar to the older surgeons, with gradual undermining of the patient's general condition, loss of weight, loss of appetite, fever, diarrhea, bedsores, etc. We have had but one such case in this series; a wound of the knee joint, with history of the joint's having been cleaned out elsewhere, treated with bismuth iodoform paste, and the capsule and skin sutured. For about a week the patient did well; then infection began in the joint, and after a long and stormy period, combined with the opening of the joint and the removal of many fragments of bones, and three pieces of shrapnel from the neighborhood of the joint, the patient's temperature began to recede. Several patients on our service with empyema have shown long continued septic temperatures; but these hardly belong in this discussion, since they came to us with the infection developed, and were treated by drainage, not by dichloramin-T.

We present the temperature charts for the first four weeks after admission of two compound fractures of the femur, the most severe cases we have had. Private W. was admitted dangerously ill, with a huge, foul wound of the lower thigh and extensive comminution of the lower third of the femur, the wound communicating through the suprapatellar pouch with the knee joint. Private H. was admitted in severe shock. Both were evacuated after eight weeks, with body union.

Secondary hemorrhages have occurred in the following cases:

1. A small wound of the temporal region, with severed temporal artery. The wound was concealed by the hair. It was not discovered for five days. Hemorrhage was trivial.
2. A compound fracture of the lower jaw. There were repeated hemorrhages until the dental surgeon could wire the jaw in place.
3. One of our two amputation stumps, necessitating ligation of the femoral.
4. A posterior tibial artery, torn by shrapnel, necessitating ligation just below the bifurcation.
5. A compound comminuted fracture of both bones of the left forearm. There were repeated hemorrhages until the patient's coincident septic pneumonia permitted a general anesthetic.

With the cooperation of Capt. E. B. Krumbhaar, M.R.C., U. S. Army, we have made bacteriologic studies of these and other wounds. We have practiced secondary closure in but few, since we believe that secondary closure represents a surgical problem that is not solved by the mere ability rapidly to sterilize a wound. We have made these studies in order to convince ourselves that the simple technic of dichloramin-T permits the sterilization of a wound as rapidly as can be accomplished by any other antiseptic, and that not only "clinical sterility," as represented by the counting of smears, but also bacteriologic sterility, as represented by negative cultures, can be attained by dichloramin-T.

We are not yet prepared, nevertheless, to subscribe to the dictum that secondary closure is always the best surgical practice.

One hundred and thirty-six examinations by smear or by culture or by both methods have been made of fifty-one wounds. Of these fifty-one wounds, thirteen were found to be sterile by culture on agar or egg plants; six were "clinically sterile," that is less than five organisms were to be found in twenty fields of a smear. Examination of twelve additional wounds by the smear method showed them to be "clinically sterile," but cultures made at the same time gave numerous colonies.

The length of time required for the sterilization of a wound will depend on the extent of the infection, and also, we believe, on the character of the microorganisms present; relatively clean wounds have been culturally sterile in eight days; foul, stinking wounds have required twenty-one days.

These results will be reported later in a discussion of the problem of the secondary closure of wounds.

NATURE AND TREATMENT OF WOUND SHOCK AND ALLIED CONDITIONS

[EDITORIAL NOTE.—The first three articles in the series of six articles on this subject, which represent the work of the Special Investigation Committee of the Medical Research Committee (Great Britain), appeared in The Journal last week, February 23, pages 520-535. The remaining three articles appear in this issue. The complete series is reprinted as a pamphlet and will be sent on receipt of ten cents in stamps.]

THE INITIATION OF WOUND SHOCK

E. M. COWELL
Captain, R. A. M. C., S. R.
FRANCE

Introduction

The name "wound shock" is suggested in order to avoid the confusion which arises, even among medical officers, if the word "shock" alone is used. The term "surgical shock" used in connection with the reaction of the body to wound injury is also to be deprecated.

Wound shock may supervene early on. That is, the man suddenly becomes pale, clammy and pulseless; and a low pressure may be found as soon as it is possible to make a reading, fifteen to twenty minutes after the man has been hit. To this group of symptoms with hypotension the name *primary wound shock* is given. When, on the other hand, as the result of a long carry in the cold or the onset of toxemia, or the presence of continuous slight hemorrhage, or combinations of these conditions, a man previously in good condition develops similar shock symptoms, a condition of *secondary wound shock* may be said to exist.

In order to understand more completely the later phases of fully developed wound shock, the necessity for making clinical studies of the earliest manifestations of the condition became more and more emphasized. Opportunities arose and facilities were granted by the army medical authorities for carrying out the requisite investigations. A series of posts were established along the route of evacuation from the firing line to the casualty clearing station. Suitable cases were chosen and examined, blood pressure readings taken, and notes made by medical officers interested in the work. A spring sphygmomanometer was used at each post. In a few instances the same observer followed the case for several miles, in order to watch the patient and check observations.

It was thus possible to collect a small series of cases and establish the exact time relations in the pressure curves of both primary and secondary wound shock.

Besides a study of the blood pressure, careful clinical notes were kept of all cases. In addition, a few hematocrit readings were made in the line and samples of venous blood taken for examination in the laboratory for acidosis.

A dynamometer was improvised from the spring blood pressure instrument in order to form an idea of the general muscular power and "tone" of the nervous system in these cases of hypotension.

Besides observations in actual wound cases, many pressure readings of officers and men in different parts of the line and under varying conditions were taken The facts observed during a tour of duty in the line in February, 1917, were confirmed and amplified.

Physiology of the Fighting Soldier

A good deal of light is shed on the pathogenesis of wound shock by a consideration of the conditions of life of the soldier in the zone of fire. In the case of men living in the areas behind the trenches, where they are exposed to occasional shell fire, the conditions of food, drink, sleep, and shelter from the weather are practically normal. One finds an average systolic pressure of from 110 to 120 mm., with a diastolic of from 75 to 80 mm. and a pulse pressure of from 35 to 40 mm.

In the front line trenches, however, the conditions of existence are for the most part unfavorable. The soldier is subjected to long spells of hard physical labor, often accompanied by profuse sweating. Sleep is short, and generally interrupted. The food supply is sufficient, but water is very often available only as a limited ration. In the firing line and during battle all these factors become accentuated.

For a large part of the year, exposure to wet and cold must be taken into account. Thus the man, who may be hit at any time, is likely to be in a state of fatigue, with a tendency to concentration of plasma, sluggish peripheral circulation, and accumulation of waste products of muscular metabolism.

The urine of such men is dark, scanty, and loaded with phosphates.

Evidence has already been obtained which shows that in conditions of this kind at an exposed active sector of the line the average systolic pressure was a little above the normal, that is, from 120 to 130 mm. Pressures were found without exception to be raised at times of increased activity, with the following average results: systolic pressure, from 140 to 160 mm.; diastolic pressure, from 70 to 100 mm.; pulse pressure, from 60 to 70 mm.. Communication of the details of these observations must at present be deferred.

It is not possible to make similar observations in the heat of battle, but there is no doubt that these physiologic conditions are all present, only in a much greater degree, affording important prewound factors in the initiation of wound shock.

Classification of Wounds with Reference to the Incidence of Wound Shock.

From the point of view of the production of shock, the wounded may be divided into the three following classes:

A. Trivial wounds, which cause only slight damage to the tissues.

B. Moderately severe wounds, in which the anatomic disturbance disables the man, but is not sufficient immediately to endanger life.

C. Serious wounds which, from the nature of the injury, must of necessity prove mortal, or which will cause death unless the man is given surgical attention within a short time.

CLASS A. TRIVIAL WOUNDS

In these a transient psychic disturbance may occur, and the man become pale and sweat. But in three cases of fainting after being wounded, the pressure, which was taken as soon as possible after the recovery from the faint, was found to be normal. In men who are more "highly strung" an excitement stage may follow a trivial wound. For example, a boy 18 years of age, with very slight multiple superficial shell wounds, exhibited a systolic pressure of 180 mm. In this group of cases the question of temperament plays a prominent part. Examination was made of a party of slightly wounded men, belonging to a county infantry battalion, as they came back into the firing trench from a raid. The average systolic pressure was 110 mm.; only one man had a reading as high as 130 mm.; he was talkative and excited.

Apropos of this question, the experimental work of Cannon[1] and his co-workers on the physiology of excitement is very interesting and eminently applicable to the soldier in battle. According to this author, a definite series of psychologic events results from the application of suitable psychic stimuli. The main factor is the outpouring of suprarenal secretion, which helps to transform the animal into a fighting mechanism. The circulation is better maintained by the raised blood pressure; the heart and skeletal muscles can do more work with their increased supply of blood sugar, and in the event of a wound being received the coagulation time of the blood is so diminished that clotting occurs more quickly and the bleeding is staunched.

In the excitement cases the pressure subsides rapidly with quiet and rest. In the case of the boy of 18, it had fallen to 160 and 90 in thirty minutes and 126 and 80 in the next hour.

CLASS B. MODERATELY SEVERE WOUNDS

In this group are included those wounds which cause a certain degree of damage to the tissues, but either a vital organ is not involved at all, or, if such is involved, the damage is slight, as in a small perforating wound of the abdomen, and danger to life does not develop for some hours. In these cases primary wound shock does not as a rule occur. If the patient is examined within a few minutes where he fell, he presents no sign of general systemic disturbance, and the blood pressure remains within normal limits. After the lapse of a short time, however, and as a result of the operation of certain factors which are to a great extent avoidable, the symptoms of shock with hypotension appear, and the patient then shows secondary wound shock (Chart 1).

For example, a man (*a*) was hit by a shrapnel ball which fractured his femur. He was passing along the trench just outside the aid post at the time, and was treated by the medical officer at once. His pulse was 72 and pressure 120 and 80. Again, by a curious chance, a shell hit a house in which was a party of men (*b*), four of whom sustained compound fractures of the femur, without developing immediate shock. Another case (*c*) was observed in an outpost in the front line, when a bomb arrived which killed one man on the spot and wounded his chum. The foot of this man was partially shattered and his shoulders and neck sprinkled by little fragments. His blood pressure, which, as it happened, had been found to be 110 and 70 a short time before, remained unaltered.

One other example (*d*) of this class of case may be quoted, which possibly is exceptional, but which is nevertheless of interest. A strong, burly lance-corporal, a boxer of good reputation, was hit by a shell which carried away his left leg halfway between the knee and the ankle and also shattered his right foot. When seen, soon after, his pulse was 96 and systolic pressure 115 mm. Clinically, one would say none of the usual symptoms of shock were present. As the pain was considerable, he was at once given a hypodermic injection of morphin, 1/3 grain, by the medical officer.

---

[1] Cannon: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915.

The immediate after history of these wounded men is instructive.

The man (*a*), with a compound fracture of the femur, who was hit outside the aid post, was warm at the time. He was put on a stretcher at once, well wrapped up, and sent down to the next post on the line of evacuation. On arrival here his pulse was 72 and pressure still normal. Since he was quite comfortable in his splint, he was kept several hours before being sent to the casualty clearing station, and developed no signs of shock.[2]

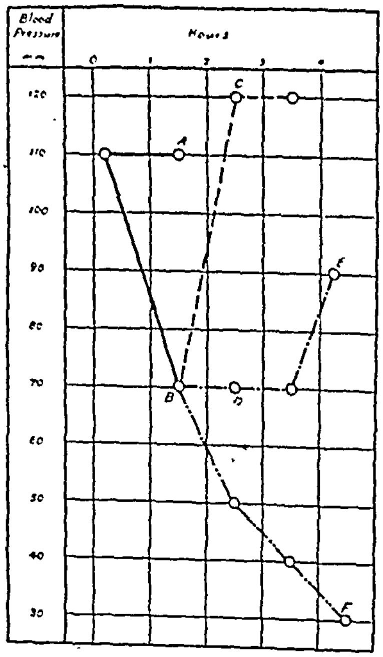


Chart 1.—Secondary shock curve; diagrammatic: In many wound cases the pressure will remain level (*A*). In others, as a result of hemorrhage or exposure to cold, there is a drop of pressure with the establishment of a secondary shock (*B*). If the patient is at this stage well cared for and the wound not too severe, the pressure will rise during the next stage of the journey (*C*) or remain stationary (*D*), improving after admission to the casualty clearing station (*E*). In the absence of favorable circumstances, the pressure goes steadily down and the case terminates fatally, usually in from twelve to twenty-four hours (*F*).

The four men (*b*), hit in the same house, were splinted at once and placed on a motor ambulance, which was driven at a walking pace to a casualty clearing station within half a mile. No shock developed, and all did well.

In the example of the man (*c*) hit by a bomb at the outpost, secondary wound shock developed. He arrived cold and pulseless at the aid post. Before he was hit he was cold, fatigued and thirsty; and during the carry of an hour and a half, exposed to the chill wind preceding dawn, he lost more heat. Fear, too, was probably superimposed as a factor in this case, since on the journey down the stretcher party was exposed to occasional shells and bursts of machine gun fire. A sound man feels moderately secure in the trenches because he can take cover; but a man who is already hit and is being carried along on a stretcher, shoulder high, feels helpless. At the next stage this man was still pulseless. Very soon after being admitted to the casualty clearing station, however, he was warmed; his pulse returned, and he did well without the exhibition of any antishock methods of treatment.

The boxer (*d*), with his leg blown off, also developed secondary wound shock. He did not manifest any lowering of tension on the journey from the trenches to the advanced dressing station, but on arrival at the casualty clearing station, about five hours after his being wounded, toxemia was beginning to develop, and the pressure had dropped from 114 and 70 to 88 and 62 mm.

Before leaving the second group of cases, another example of marked wound shock, but with quick recovery, may be mentioned. A young soldier (*e*) in a wiring party sustained two simple bullet wounds of the fleshy part of the thigh. It was a cold night. After being carried two hours, with no hemorrhage, he was found to be cold, thirsty and pale, with a pressure of 70 and 50 mm., and a small thready pulse of 68. He was given a hot drink and, after being warmed and well wrapped up, was sent off. At the next post his arterial pressure had risen to 120 and 80 mm., and remained at that level on arrival at the casualty clearing station.

CLASS C. SERIOUS WOUNDS

In the third group a serious surgical condition has resulted from the wounding. The wound shock comes on early, and apparently in proportion to the gravity of the lesion[3] (Chart 2).

In primary wound shock, very definite clinical symptoms may be observed. For example, the driver of an ambulance car was hit in the abdomen by a shell fragment as he arrived at the dressing station on a warm, sunny morning. He fell down, and within a few minutes, as his wound was being dressed, drew the attention of the medical officer to his profuse sweating. He was wrapped up in blankets, hot bottles were applied, and he was sent off. After thirty minutes' ride over a rough road, scarred by shell holes, he was found to be responsive to questions. He complained of pain, and presented cold, clammy extremities, with the sweating still marked. He was pale, with a pulse of 96 and a pressure of 100 and 70. On arrival at the casualty clearing station, about forty-five minutes later, the pressure had further dropped to

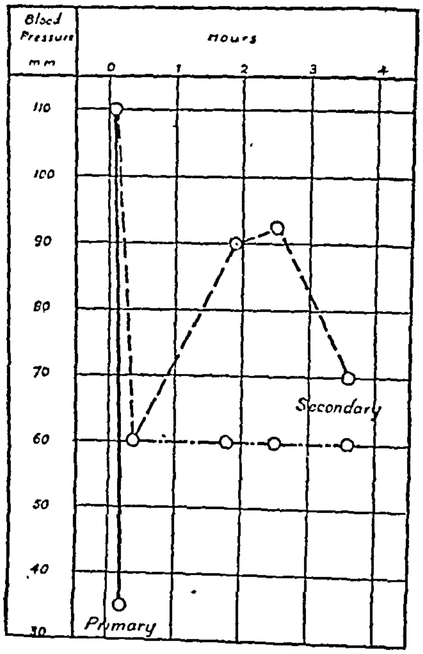


Chart 2.—Primary wound shock curves; diagrammatic: Following the receipt of a severe anatomic injury, where death must ensue or where life can be saved only by prompt surgical interference, instant shock appears accompanied by hypotension. This may be fatal in a short time. If all precautions are taken in the careful transit of the patient, the pressure may rise *en route* or remain level without further drop. After the lapse of a few hours the condition of primary wound shock merges into that of secondary wound shock unless recovery has first occurred.

---

[2] There is little doubt that since the universal introduction of the
Thomas splint for fractures of the femur, which has proved increased
comfort to the patient and immobilization of the fragments of the bone,
the incidence of secondary shock has been greatly diminished. Such
patients used to arrive at the casualty clearing station with well estab-
lished shock showing systolic pressures of 80 or 90 mm. or less.
Similar cases now arrive with systolic and diastolic pressures of 130
and 90, 120 and 80, or even 160 and 100 in one case.

[3] The only predetermining factor of any importance in the amount of shock which may result is the temperamental stability of the patient. This point is illustrated in some of the following cases.

82 and 70 and the pulse had risen to 100. Operation was performed in time to stop further hemorrhage. Ten rents in the bowel were repaired, and after intravenous infusion he eventually made a good recovery.

A few other examples of severe injuries with early wound shock may be quoted, in which circulatory disturbance predominated. In these cases, whenever the systolic pressure was found below from 60 to 70 mm., it was always a distressing symptom.

Case 1.—A man on a working party was seen about forty minutes after being hit by a shell burst. He had sustained penetrating wounds of the chest, buttocks, legs and thigh, with fracture of the femur. He was cold, with a clammy skin; pulse 80, and blood pressure 60 and 50 mm. He complained loudly of thirst and pain. His sensation was normal, and as the antitoxin needle was inserted he cried out. Respiration was from 20 to 24, with no unusual characteristics. Morphin, ¼ grain, hypodermically, stopped the pain in a few minutes; and after a few hours' warming he was sent on with a pulse of 90 and pressure of 98 and 70.

Case 2.—A young officer, of a nervous, irritable disposition, was hit in the dorsal region of the spine by a sniper just after dawn. Two hours later his blood pressure was 75 and 50, pulse 84, and all the signs of wound shock were present.

Case 3.—A large, powerfully built gunner was seen within half an hour after being hit, one hot, sunny morning. The shell fragments had fractured his lower jaw and left femur. He was cold, sweating, pulseless and thirsty. The systolic pressure was about 30 mm. There was considerable hemorrhage. He was treated in the routine way and sent down. He improved for a time at the casualty clearing station, but eventually died of gas gangrene.

Case 4.—Another man, hit by a shell while on a working party on a cold, wet, muddy night, was brought to the advanced dressing station within fifty minutes. He was found to have multiple severe wounds, including compound fractures of both a femur and a humerus, with laceration of the muscles. When examined, the wounds looked like dead tissues. There was no bleeding, and practically no capillary oozing. His systolic pressure was 40 mm. Mentally he was quite bright and responsive, so that the medical officer in charge of the case remarked on the patient's "wonderful fitness." The man, however, was dead within the hour.

Case 5.—Another man had a severe wound of the buttock, penetrating the abdomen. He was seen a short time before death, about two hours after he was hit. He was pulseless at the wrist, with a blood pressure of about 30 mm., and was so restless that he had to be held on the stretcher by two orderlies.

Case 6.—A thin, lightly built sergeant of anxious, worrying disposition was hit as he lay asleep at the foot of his dugout, by a shell which shattered both his feet. His company commander, a medical man, was fetched within two minutes and found him unconscious and pulseless. Both feet were pulped, but not bleeding. He died about an hour later.

The "grip," as recorded by the improvised dynamometer in those cases of profound hypotension in which it was possible to make this test of muscular power, was in all cases practically the same as for a normal man.

Conclusions

1. The psychology and physiology of the average healthy "veteran" soldier, living in the fighting zone under "peace" conditions are, for practical purposes, normal.

2. In battle and at points of activity, the conditions of excitement, cold, thirst, fatigue and possibly loss of sleep become important prewound factors in the initiation of wound shock.

3. Wounds may be classified into three groups with regard to the incidence of shock.

Trivial wounds, such as slight scalp injuries or small lesions of subcutaneous tissues only, give rise to neither primary nor secondary wound shock. Transient psychic disturbances of either depression or excitement may result, accompanied by a normal or raised blood pressure.

In *moderately severe wounds,* such as uncomplicated compound fracture of the femur, a slight penetrating wound of the abdomen or a lacerating wound of muscle without urgent hemorrhage, as a rule, primary wound shock is absent, that is, if the patient is seen within a few minutes. If circumstances permit of sufficient care being taken, probably no untoward symptoms will arise, and secondary wound shock may be averted (Cases *a* and *b*).

As the factors of cold, toxemia, pain, anxiety or lack of water are allowed to come into play, however, there develops, after a lapse of several hours, secondary wound shock (Cases *c, d,* and *e*).

Into the category of *serious wounds* will fall a large group of cases in which the wound must of necessity prove mortal. Symptoms result immediately and hypotension is found from the earliest moments (Cases 1 to 6). This is primary wound shock. Such shock is likely to be produced to a greater degree in men possessing temperamental instability. After a few hours, unless recovery has first occurred, the condition of primary wound shock merges into that of secondary wound shock, owing to the operation of the same conditions, cold, pain, anxiety. In the slighter cases, recovery from primary symptoms is rapid (Case 1); but then exposure and the factors enumerated in B may come into play, and secondary wound shock become established.

Social Insurance Legislation in 1917.—From the *American Labor Legislation Review,* September, 1917, is abstracted the following information concerning social insurance and allied topics as acted on in the state legislatures during 1917. Workmen's compensation laws were enacted in Delaware, Idaho, New Mexico, South Dakota and Utah, and in twenty-six states amendments to existing laws were made. The tendency has been to extend the scope of the laws, to shorten the period at which compensation begins, and to increase the provision for medical care. Thirty-seven states and the territories of Alaska, Hawaii and Porto Rico now have compensation laws, and in addition legislation has been enacted in Congress for the benefit of government employees, along with the important provision for compensation and insurance for soldiers, sailors and civilian seamen and compensation for longshoremen. Other forms of social insurance were the subject of increased interest during the year. In California, after two years' investigation, the legislature has submitted to the people a constitutional amendment providing for a system of health insurance. Massachusetts, Pennsylvania and Illinois have continued or created commissions to study health insurance, and Pennsylvania has a separate commission to study old age pensions. New Hampshire created a committee to study workmen's compensation and health insurance together, Wisconsin covers social insurance generally, Connecticut is studying health and old age insurance, and Oregon and Idaho enacted legislation to regulate hospital funds. Arizona enacted a minimum wage law for women in private employment, being the twelfth state to pass such a law. Montana and Nevada established an eight hour limit for women, and Alaska passed a universal eight hour law. Congress empowered the President to suspend the eight hour law on government war work provided time and a half were paid. A few other states relaxed somewhat the laws relating to hours of labor.

A CONSIDERATION OF THE NATURE OF WOUND SHOCK

W. B. CANNON, M.D. (BOSTON)
Captain, M. R. C., U. S. Army
FRANCE

Introduction

The previous papers of this series have consisted mainly of records of observed phenomena in cases of shock, with little discussion of their origin or significance. These observations, however, have suggestive values and are pertinent to theoretical aspects of the shock problem. A consideration of the bearings of our results on previous views of the nature of shock may bring out some new points and may be useful in directing further investigation into fruitful channels.

The Bearing of Present Work on Previous Theories of Shock

A. THE ACAPNIA THEORY

The thesis advanced by Yandell Henderson that shock is due to a reduction of the carbon dioxid of the blood (acapnia) has received much attention. In support of his view, Henderson[1] produced low blood pressure in animals by vigorous artificial respiration, and he assumed that the lowered carbon dioxid content of the blood thus induced was the prime factor in establishing the shocklike state. In all probability, however, the effect was due, not to reduction of carbon dioxid, but to mechanical obstruction to return of blood to the heart and to consequent failure of the circulation. Only by such extreme inflation of the lungs as would hinder the passage of venous blood through the veins of the chest were Janeway and Ewing[2] able to obtain the results described by Henderson, and they succeeded equally well when the normal carbon dioxid content of the blood was maintained.

Further doubt is thrown on Henderson's views by observations on the character of the breathing in wounded men suffering pain. Deep and vigorous ventilation of the lungs is required to produce a marked diminution of the carbon dioxid content of the blood. Cowell made a special point of looking for that type of respiration in recently wounded men, but did not see it. And in a man brought under my observation at the clearing station a few moments after he had been hit in the wrist by a bomb splinter, which was giving him much pain, explosive respirations, preceded by holding the breath, were going on at the rate of 12 per minute. From the evidence in hand it appears that painful wounds are not directly associated with a hyperpnea that would produce acapnia.

Recently Henderson, Prince and Haggard[3] have reported finding in animals experimentally shocked a condition of acidosis; and since the blood in this state has a reduced capacity for carbon dioxid, he has given the "acapnia" theory a new interpretation—the carbon dioxid is low because of the acidosis. The observations previously reported[4] confirm in human cases the evidence secured experimentally. Shock is accompanied by acidosis, and the ability of the blood to take up carbon dioxid is correspondingly reduced. Henderson has raised the question, however, as to whether the alkali of the blood controls the carbon dioxid content, or the carbon dioxid content controls the alkali. Apparently reluctant to abandon his acapnia theory, he suggests that in shock, excessive breathing may greatly lower the carbon dioxid of the blood, and that as a protective compensation acidosis is developed to prevent the fatal apnea that might ensue from lack of stimulating H-ions. Again it is proper to emphasize the observation that such hyperpnea as would result in marked reduction of the circulating carbon dioxid is absent from wounded men. To be sure, the chlorin content of the plasma increases[5] as carbon dioxid leaves the blood, but as any one may easily demonstrate to himself, this is not a process of sufficient magnitude to prevent apnea after vigorous hyperpnea. Furthermore, in shock, acidosis, in the sense of a lessened alkali reserve, occurs before any noteworthy effect on respiration is manifest. These considerations render highly questionable Henderson's suggestion of a primary acapnia.

Henderson[3] and also Porter[6] have advocated rebreathing expired air as a means of improving the circulation in shock. Henderson's object is to maintain the carbon dioxid content of the blood in spite of an alkali deficit, with the idea that alkali may thus be mobilized and the circulatory apparatus benefited. Porter's object is to increase the amplitude of the movements of the diaphragm so that the sufferer who has bled "into his own abdominal veins" may pump the blood from this reservoir into the heart. The certain effect of the increase of the carbon dioxid in the blood is to increase the H-ion concentration. That this stimulates not only the respiratory center but also the vasomotor center was shown by Mathison.[7] The ability of the vasomotor center to respond to stimulation, even in profound shock, was proved by Porter[8] in 1908. That the increased arterial pressure obtainable by increasing the H-ions of the blood would be only temporary was to be expected. As one of Porter's cases shows, the raised pressure promptly fell to the former shock level as soon as the carbon dioxid administration stopped. The respiratory mechanism, of course, at once gets rid of the excess of carbon dioxid, the H-ion concentration falls, and the stimulus which raised the pressure is thereby reduced. There are possibilities of harm in this procedure, however, that should not be overlooked. As Milroy[9] has recently demonstrated, when the alkali reserve is reduced, exposure of the plasma to a given concentration of carbon dioxid increases the H-ion content to a much greater degree than is the case when the plasma is normal. Increase of the H-ion concentration interferes with cellular oxidation.[9] If the patient rebreathes his expired air, the oxidative processes are further interfered with through diminished oxygen supply. Thus, nonvolatile acids may arise which fix the alkali and lead to a more permanent increase of the H-ion concentration of the blood. The state of acidosis which already exists in the shocked man may, therefore, be distinctly aggravated by the procedures advocated by Henderson and by Porter. In this connection the testimony of Marshall, who as an expert anesthetist in a casualty clearing station has had large experience, is pertinent. He has declared that the most important consideration in anesthetizing patients suffering from hemorrhage or shock is to avoid anything in the nature of asphyxia; indeed, that if such a patient becomes cyanosed, he loses ground that can hardly be recovered. This warning is in accord with the contention that any action increasing acidosis is to be avoided.

---

[1] Henderson, Yandell: Am. Jour. Physiol., a series of papers, 1908-1910.

[2] Janeway and Ewing: Ann. Surg., 1914, **59**, 158.

[3] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965.

[4] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531.

[5] Hamburger: Osmostischer Druck und Ionenlehre, Wiesbaden, 1902., I, p. 264. See also Austin and Jonas: Am. Jour. Med. Sc., 1917, cliii, p. 86.

[6] Porter: Boston Med. and Surg. Jour., 1917, **176**, 699; **177**, 326.

[7] Mathison: Jour. Physiol., 1910, **41**, 430.

[8] Porter: Am. Jour. Physiol., 1908, **20**, 404.

[9] Milroy: Jour. Physiol., 1917, **51**, 279.

B. THE IDEA OF SUPRARENAL EXHAUSTION

Since removal of the suprarenal glands results in lowered arterial pressure, and since secretion or injection of the extract of the suprarenal medulla increases the pressure, the idea has been advanced that in shock there is suprarenal exhaustion and consequent hypotension.[10] If the distinction which should be drawn between the effects on blood pressure of the medullary and cortical portions of these glands is for the moment disregarded, it may be pointed out that, according to Short,[11] who used a very delicate test, the epinephrin content of the glands in fatal cases of shock is not notably reduced. Furthermore, Mann[12] has reported that total excision of the suprarenals does not reproduce the phenomena of shock.

There is experimental testimony that painful stimuli and asphyxia increase both the secretion of epinephrin and the percentage of sugar in the blood, and that the sugar percentage does not rise if the suprarenal glands are not cooperative.[13] Persons suffering from wound shock have been severely stimulated, and the low blood pressure which characterizes their condition produces a state which is equivalent to partial asphyxia. Bedford and Jackson[14] and later Bedford reported finding the epinephrin content of the blood increased if the blood pressure is low. The high percentage of sugar found in our series of shock cases likewise indicates that the suprarenal glands are, if anything, overactive rather than exhausted.

C. THE NERVE EXHAUSTION THEORY

When observers noted that arterial tension is low in shock, the first suggestion offered was that relaxation of the arterioles had occurred, and in consequence there was no support for the head of pressure which the heart might otherwise develop. This view, long ago expressed by Mitchell, Keen and Morehouse, has been elaborated by Crile[15] in extensive investigations on the blood pressure and on the nerve cells in shocked animals. It is his belief that the most vital effect of shock is "the impairment of the vasomotor mechanism." The concept has been gradually developed that shock consists essentially of exhaustion of cells in the brain, the liver, and the suprarenal glands. Evidence that the suprarenals are not exhausted has been presented above. The theory of a primary exhaustion of nerve cells requires examination. It may be considered, first with regard to the vasomotor center, and then with regard to cerebral and motor functionings.

A lowering of arterial pressure is not proof that the vasomotor center is inactive or exhausted, for arterial pressure may be low in consequence of hemorrhage, that is, when only a small volume of blood is delivered to the heart for each contraction. Furthermore, even when an animal is in extreme shock, Porter[16] and his collaborators found that both pressor and depressor reflexes still occur. The occurrence of depressor effects proves that some tonic activity of the vasomotor center is still present, for otherwise its action could not be depressed; and the pressor responses show that the center is still capable of increased action when stimulated. These observations by Porter have been confirmed by Seelig and Lyon[17] and by Mann.[18]

Since the vasomotor center is not exhausted, the question arise [illegible] its actual condition in shock. Recent experimental evidence points to its effective control of peripheral and visceral arterioles in the shocked state. Seelig and Lyon[19] found that cutting the nerve of a leg in a shocked animal caused an increased flow of blood from the femoral vein. Guthrie, in confirming this work, observed that whereas the increase of flow in a normal animal was 22 per cent., in a shocked animal it was 76 per cent. Later, Seelig and Joseph[20] noted that if in a shocked rabbit the blood pressure was suddenly raised by clamping the aorta, the blood greatly distended the arteries of one ear whose nerves had previously been cut, but failed to distend the arteries of the other ear whose nerves were still connected with the vasomotor center. In other words, the center was still holding the vessels in effective contraction. Similar observations have been made by Mann[21] on internal organs. And a number of investigators have reported that in an animal with low blood pressure the rate of perfusion flow is less with a given pressure than in a normal animal, and that severance of the nerves to the organ or increase of the blood flow to the vasomotor center increases the rate.[22]

Moreover, the studies of Pike, Guthrie and Stewart[23] have revealed the fact that the vasomotor center is more capable of withstanding the adverse influences of anemia than any other of the vital bulbar centers—the respiratory, the cardio-inhibitory or the swallowing mechanisms. Its capacity to function is the last to disappear in total anemia, and the first to reappear when the blood flow is restored. Obviously, the vasomotor center should be regarded as an agent whose functions are extremely stable and whose capabilities for continued service are its most outstanding feature. Only endangering circumstances, such as lessened blood supply, are required in order to make it become, for a time at least, more than usually active.

In this connection it is interesting to observe that not infrequently in cases of profound shock, when a pulse cannot be felt at the wrist, it can be felt easily if the palpating fingers are moved up the arm where the arteries are larger, or applied over the carotid. Fraser has repeatedly noted while operating on shocked men such strong contraction of outlying arteries that no bleeding occurred when the vessels were cut.

The evidence from functional disturbance that parts of the nervous system other than the centers controlling the circulation are *exhausted*, in any strict sense of that term, is meager. Even when the blood pressure has been much reduced, the intelligence remains clear, the patient may be restless rather than somnolent, and often exhibits surprising muscular power. Cowell reports no reduction of the strength of grip in shock; and he observed a wounded man, pulseless, with a systolic pressure about 30 mm., who [illegible] vigorous in his movements that two orderlies were required to hold him on the stretcher.

---

[10] Corbett, J. F.: The Suprarenal Gland in Shock, The Journal A. M. A., July 31, 1915, p. 380.

[11] Short: Lancet, London, 1914, **1**, 131.

[12] Mann, F. C.: Shock During General Anesthesia, The Journal A. M. A., Aug. 4, 1917, p. 371.

[13] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, 1915, pp. 69-77.

[14] Bedford and Jackson: Proc. Soc. Exper. Biol. and Med., 1916, **13**, 85-87. Bedford: Am. Jour. Physiol., 1917, **43**, 235.

[15] Crile: Volumes on Surgical Shock; Blood Pressure in Surgery; Anoci-Association.

[16] Porter: Am. Jour. Physiol., 1907, **20**, 399.

[17] Seelig and Lyon: Surg., Gynec. and Obst., 1910, **11**, 146.

[18] Mann: Bull. Johns Hopkins Hosp., 1914, p. 208.

[19] Seelig, M. G., and Lyon, E. P.: The Condition of the Peripheral Blood Vessels in Shock, The Journal A. M. A., Jan. 2, 1909, p. 45.

[20] Seelig and Joseph: Proc. Soc. Exper. Biol. and Med., 1914, **12**, 49.

[21] Mann: Bull. Johns Hopkins Hosp., 1914, p. 209.

[22] Morrison and Hooker: Am. Jour. Physiol., 1915, **37**, 93. Pilcher and Sollmann: Ibid., 1914, **35**, 59, 70. Bayliss: Proc. Roy. Soc., London, 1916, **89**, 391.

[23] Pike, Guthrie and Stewart: Jour. Exper. Med., 1908, **10**, 490.

The evidence for exhaustion which has been advanced by Crile[24] and his co-workers is mainly histologic, and is based on examination of nerve cells taken from shocked animals. [illegible] probable that these changes are due directly to afferent impulses, for Forbes and Miller,[25] by use of the string galvanometer as an indicator, found that anesthesia blocks the passage of impulses to the brain. The suggestion is reasonable that any cell alterations that may occur in shock are the resultant of the low blood pressure rather than its cause. Indeed, Dolley has admitted that hemorrhage produces the same alterations in the cells that are seen in shock. Crile's testimony that, if the blood pressure is kept up by transfusion into the shocked animal much more severe trauma is required to alter the cells than when shock takes its natural course, is further testimony to the same interpretation. It should not be forgotten, however, that histologic evidence regarding the state of nerve cells is subject to grave mischances both in technic and in interpretation. And other observers who have examined nerve cells from shocked animals declare that the changes are within the limits of normal variations.[26]

Differences in the appearance of nerve cells from separate parts of the nervous system might be regarded as indicating a definitely directed agent, such as nerve impulses, rather than a general agent, such as low blood pressure, at work to induce changes. The differences are explicable, however, on the ground that nerve cells are differentially sensitive to anemia, and by exposure to an inadequate circulation they would be differentially affected.[27]

The interpretation of cell changes as the result rather than the cause of shock points to a clear distinction which should be drawn between early and late indications of asthenia in shocked men. Though the vasomotor centers may for a time be normally active or even hyperactive, and the neuromuscular mechanisms may be ready for service, continuance of low blood pressure and the development of an acidosis which interferes with internal respiration will surely have deleterious influences, and ultimately will destroy the hardiest and most resistant structures. It is when these adverse conditions have brought to the point of exhaustion organs which are of vital importance that death occurs.

The Cardiac Factor

The foregoing discussion of the exhaustion theory has emphasized the evidence that the low pressure of a shocked man is not due to relaxation of the arteries through paralysis or inactivity of the vasomotor center. The other important factor in maintaining the arterial head of pressure is the heart. As has been often observed, the heart characteristically beats rapidly in shock and after hemorrhage.[4] The suggestion has been offered that the rapid beat is due to paralysis of the cardio-inhibitory center, but Mann[28] found that in the shocked animal the center is responsive to reflex stimulation and also to increase of intracranial tension. The nervous check on the heart, therefore, is not impaired. Indeed, the rapid cardiac beat with hypotension is precisely what is to be expected according to the reciprocal relation which commonly prevails between heart rate and arterial pressure.

That the heart muscle is not defective in shock has been shown experimentally. Raising the arterial pressure to a high level by epinephrin does not overwhelm the heart; when properly supplied with blood, it meets the situation and contracts with vigor. Low arterial pressure, however, if prolonged, may incapacitate the heart, for Markwald and Starling[29] have found that when the systolic pressure falls below 80 mm. of mercury, the cardiac contraction begins to weaken. And Patterson[30] has shown that when the H-ion concentration of the blood increases (by increased carbonic acid), the heart relaxes more and more and beats less energetically. The low blood pressure and the acidosis of shock, therefore, may in time impair the efficiency of the organ, though no primary defect be present.

The Problem of the "Lost Blood" in Shock

If the vasomotor center is efficiently at work, and if the heart is capable of assuming any reasonable burden placed on it, why is there a low arterial pressure in shock? The answer to this question lies in the diminished volume of blood which is in active circulation. Henderson, especially, has laid stress on the necessity of a sufficient supply of blood being delivered to the heart, if arterial pressure is to be kept at its normal level. In the absence of this supply, as, for example, after hemorrhage, the arterial pressure falls to a low level and can be raised only by introducing blood or other viscous fluid into the vessels.

A further question now arises, one of the critical questions in the mystery of shock, "Where is the lost blood in the shocked individual?" There are no indications that it is in the heart or lungs; it must be, therefore, in systemic arteries or capillaries or veins.

IN THE ARTERIES?

The absence of the lost blood from the arteries is sufficiently proved by the facts already discussed. With an efficient vasomotor center and a capable heart, an adequate amount of blood in the arteries would be accompanied by high arterial pressure. That the pressure is low, as already stated, signifies that the heart is not supplied with enough blood to fill the arterial system.

IN THE VEINS?

The view commonly held in the past has been that in shock, blood is stagnant in the large venous reservoirs of the chest and abdomen, and especially in the capacious splanchnic area. "In shock," it is said, "the sufferer bleeds into his own abdominal veins." It appears that this view is based largely on evidence from experiments which has been rather uncritically accepted. The most certain way to produce shock in a lower animal is by exposure and manipulation of the intestine. Under these circumstances the mesenteric veins stand out prominently, blood gathers in the intestinal walls, and becomes more concentrated there, and the structures that have been freely handled appear as if inflamed.[31] In other words, blood obviously stagnates in abdominal vessels. Such a condition is not seen in natural shock. According to Keith,[32] the venous cistern, formed by the big veins of the chest and abdomen, has a capacity of 400 or 550 c.c. Mann[33] has found that the amount of blood that can be obtained by bleeding and by emptying the heart of normal animals is 76 per cent., leaving 24 per cent. "in the tissues." When animals are shocked by exposure of the intestine the amount left in the tissue rises to 39 per cent., a difference of 15 per cent. If the blood mass of a man of 70 kg. is taken as 3,500 c.c., the amount thus "lost" would be 525 c.c. If this blood were in the veins of the abdomen, systemic or splanchnic, their capacity would have to be greatly enlarged, and their distention would be clearly visible.

---

[24] Crile: Anoci-Association, Philadelphia, 1913, passim. Dolley: Jour. Med. Research, 1909, p. 95; 1910, p. 331.

[25] Forbes and Miller: Am. Jour. Physiol., 1916, **40**, 503-513.

[26] Allen: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 76. Kocher, R. A.: The Effect of Activity on the Histologic Structure of Nerve Cells, The Journal A. M. A., July 22, 1916, p. 278.

[27] For discussion see Cannon and Burket: Am. Jour. Physiol., 1913, **32**, 347.

[28] Mann: Bull. Johns Hopkins Hosp., 1914, p. 210.

[29] Markwald and Starling: Jour. Physiol., 1913, **47**, 275.

[30] Patterson: Proc. Roy. Soc., London, 1915, B, **88**, 394.

Surgeons of extensive experience at casualty clearing stations in the present war, who have performed many hundreds of abdominal operations on patients in all degrees of wound shock, have testified that on opening the abdomen they have not found any primary splanchnic congestion.[34] The method employed to produce shock in lower animals, which has repeatedly called attention to the abdomen and its peculiar circulation, has given rise to misleading inferences as to what occurs in natural shock brought on by wounding other regions than the abdomen.

If the lost blood were in the systemic veins, furthermore, it should be possible promptly to remedy the condition of a shocked individual by placing his body in a slanting head-down position, bandaging the limbs, and compressing the abdomen. Such measures have been thoroughly tried in treating shock, and though perhaps in some cases helpful, they do not give results which indicate that the blood which is out of circulation is stagnant in the large venous channels.

The fact should be remembered that veins are to a considerable extent subject to vasoconstrictor impulses; and if conditions are such as to continue the activity or to induce an overactivity of the vasoconstrictor center, the veins as well as the arteries might be contracted. Venomotor nerves have not been demonstrated for all parts of the body, however, and if there are veins free from nervous control, other influences causing relaxation might prevail. Only slight dilation, perhaps too little to be conspicuous, would be needed to increase considerably the venous capacity. But there are no observations that the veins are even slightly dilated in shock.

IN THE CAPILLARIES?

If in wound shock the lost blood is not in the arteries and probably not to a great amount in the veins, it must be mainly stagnant in the capillaries. Observations reported in a previous paper[35] have shown that in shock a striking discrepancy exists between the corpuscular content of the capillaries and the veins. There is a concentration of the blood and a stagnation of the corpuscles in the capillaries which can be demonstrated in such widely separated parts as the ears, the fingers and the toes. The discrepancy is, to be sure, more marked in superficial areas than in deeper regions; but even in the latter a noteworthy difference is found.

The question immediately occurs, Is the capillary capacity sufficient to contain the lost blood in shock? Unfortunately, the data for estimating the capillary capacity are not definitely established, and it is impossible to state with any assurance what amount of blood these vessels may contain. Ranke inferred from determinations made on freshly killed rabbits that approximately one fourth of the blood is in the heart, lungs and great blood vessels, one fourth in the liver, one fourth in the resting muscles, and one fourth in the remaining organs.[36] The large proportion of the blood, about 75 per cent., which is outside the heart, lungs and large veins and arteries, seems to indicate an abundant capacity in the small vessels lying within the tissues. On the other hand, an estimation of the capacity of the capillaries, based on the inverse ratio between the rate of flow and the cross-section, yields a rather small volume for capillary contents. The most favorable ratio of the rate of flow in the aorta and in the capillaries, stated by Tigerstedt,[37] is 2,000:1. The cross-section of the aorta of an adult man is about 4.4 sq.cm.; that of the total capillary bed, on this basis, would be (4.4 × 2,000) 8,800 sq.cm. The average length of a capillary is given as 0.05 cm. The total capacity of the capillary system, therefore, would be only about 440 c.c. This calculation does not take into consideration, however, the fact that capillaries are not all full of blood. Heubner[38] observed after injecting sodium gold chlorid the sudden appearance of new capillaries in the frog's web, so that a coarse mesh was quickly changed to a fine one. And Worm-Müller[39] was convinced that the only way to account for the ability of the circulatory system to accommodate itself to injection of large amounts of blood was to assume a utilization of capillaries not ordinarily filled. He cited the difference of appearance of the intestine when at rest and when digesting, the phenomenon of blushing and the redness of the inflamed skin as illustrating the idea that the capillary net may contain much more blood than it usually contains. The *distensibility* of the capillaries also should be considered, for Roy and Brown[40] noted that chloroform could double the diameter of capillaries (thus quadrupling their capacity). Still another consideration which is pertinent to the conditions in shock is the *concentration* of the capillary blood, as shown in a previous paper,[35] which means a retention mainly of corpuscles in the capillaries. All these facts appear to warrant the conclusion that the capillary capacity is sufficient to contain the lost blood in shock, and that the chances of its doing so are greater the more concentrated the lost blood becomes.

The observations previously reported[35] indicated that the capillary blood may be concentrated to such an extent that a cubic millimeter contains 8 million instead of 5 or 6 million corpuscles. An equal concentration does not occur in all parts of the body. The observations of Cohnstein and Zuntz,[41] however, suggest that when blood pressure is lowered (by cutting the spinal cord) a capillary stagnation occurs to such an extent as to pack the vessels closely, while the venous blood quickly falls in corpuscular content (a drop of about a million corpuscles per cubic millimeter in ten minutes). Lowering of blood pressure by spinal section will in itself, on this evidence, induce a stasis which can be clearly seen under the microscope, and is observable in both surface and internal capillaries.[42]

---

[31] Morrison and Hooker: Am. Jour. Physiol., 1915, **27**, 93. Mann: Surg., Gynec. and Obst., 1915, **65**, 380.

[32] Keith: Jour. Anat. and Physiol., 1908, **62**, 1.

[33] Mann: Surg., Gynec. and Obst., 1915, **55**, 380.

[34] Statement by Wallace, Fraser and Drummond: Lancet, London, 1917, **2**, 727.

[35] Cannon, W. B.; Fraser, John, and Hooper, A. N.: Some Alterations in the Distribution and Character of the Blood in Shock and Hemorrhage, The Journal A. M. A., Feb. 23, 1918, p. 526.

[36] Vierordt: Anatomische, Physiologische und Physikalische Daten und Tabellen, Jena, 1893.

[37] Tigerstedt: Physiologie des Kreislaufes, Leipzig, 1893, p. 423.

[38] Heubner: Arch. f. Exper. Path. u. Pharmakol., 1907, **56**, 375.

[39] Worm-Müller: Ber. ü. d. Verhandl. a. k. Sachs. Ges. d. Wissensch., 1873, **25**, 650.

[40] Roy and Brown: Jour. Physiol., 1879, **2**, 375.

The Viscosity Factor

There are other conditions besides a low blood pressure that are favorable to capillary stagnation of the corpuscles. These are concerned with alterations in viscosity. The viscosity of the blood is complex, consisting, as it does, of the internal friction of the plasma, the friction of the corpuscles with the plasma and with each other, and the frictional contacts of the corpuscles with the vessel walls, especially in the capillaries.

A prime factor affecting the viscosity of blood is the number of corpuscles per unit volume. The polycythemia of cholera, for example, may cause the viscosity of the blood to rise from 4.8 to over 20.[43] Cohnheim[44] attributed the low blood pressure in cholera to a failure of the blood to return to the heart, owing to the enormous increase of frictional resistance that is caused by concentration. The concentration of the corpuscles in the capillaries would, in itself, render the friction greater, and increase the resistance to an onward movement.

Another agent affecting the blood's viscosity to a notable degree is temperature. The increase of internal friction is related directly to a fall of temperature. Denning and Watson[45] found that viscosity of blood was increased 3 per cent. with a fall of 1 degree Centigrade, and that the temperature factor was more effective the larger the number of corpuscles present. Even in normal persons, application of cold increases the red count in the cooled capillary areas. Cowell's observations on recently wounded men have shown that a prompt and striking reaction to the injury is profuse sweating.[46] One of the most effective modes of lowering body temperature is through evaporation of sweat; indeed, it is the only way of losing heat when the surrounding temperature is equal to or exceeds that of the body. Normally, as the surrounding temperature falls, sweating ceases and heat is lost by radiation and conduction. In the shocked man exposed to cold all three processes are going on; and the clothing, wet with sweat or rain, permits the loss by conduction to be much augmented. Thus the surface is liable to be speedily cooled, and soon the whole body is affected. It is common for the body temperature (buccal) to be below 95 F., and readings as low as 87 and 88 have been noted in shocked men. Of course, the skin and extremities are much colder.[47] According to Cowell's observations shivering is rarely seen under these conditions. The heat loss, therefore, is not compensated for by heat production.

The increase of viscosity due to cold is not to be regarded as the only factor leading to capillary stagnation; it is probably not sufficient by itself to have that effect. Possibly cold affects capillary walls in a way leading to greater friction. Hough and Ballantyne[48] have reported a rise of capillary pressure in cooled parts of the body, together with lessened conspicuousness of the veins, and they suggest that contraction of muscles in the venules may check the outflow from cooled capillary areas. However loss of heat may operate, the evidence is clear that it results in concentration of blood in capillary areas; and this factor, added to the effect of low blood pressure, would favor segregation of the corpuscles in the capillaries. Significant in this connection is the commonly observed greater incidence of shock in cold weather, and especially when the cold is accompanied by rain, so that clothing is wet through. Likewise significant is the fact that as a wounded man becomes chilled his blood pressure falls, and as he is warmed his blood pressure may rise again.[46]

In addition to concentration of corpuscles and lowered temperature as conditions increasing the viscosity of the blood, there is the influence of an increase of H-ions. I have already[4] dealt with the existence of acidosis in cases of shock. Since there is evidence that acidosis has other effects than merely on the corpuscles, its influence will be considered in some detail.

The Effects of Acidosis on the Circulation

In all probability, the lowering of the alkali reserve in cases of shock and hemorrhage is due to a fixed union of the alkali with acids, which, unlike carbonic acid, do not pass off in the lungs. The production of such acids is known to occur when oxidation is interfered with. A low blood pressure with slow circulation, cold, and corpuscular stagnation would all cooperate to check the normal oxidative processes of the body, and to increase the production of intermediary acid metabolites. Emphasis should be kept on the fact that these metabolites would be more concentrated in the tissues, and in the perivascular fluids than they would be in the blood, for they must diffuse from their source in the cells into the circulating stream. Thus, though the alkali reserve in the blood may not be reduced to a degree which would indicate a considerable increase in the H-ion concentration, the H-ion concentration in stagnant capillary regions must be still higher. And if the reserve in the blood is greatly reduced and the H-ion concentration is much raised, still greater concentration must exist in the tissues. In addition, if the tissue fluids are cooled, they will be still more acid; for, as L. J. Henderson[49] has pointed out, the alkalinity of the body fluids decreases as the temperature falls. The acids thus developed in the tissues and affecting first the capillaries and small veins, with their corpuscular contents, might have effects on the circulation which would augment the action of low pressure, concentration and cold as considered above.

1. There is evidence that acid or change in the blood in the direction of acidity may have depressive effects on the *blood pressure.* Thus Hooker[50] observed that carbonic acid in minimal effective amounts always

---

[41] Cohnstein and Zuntz: Arch. f. d. ges. Physiol., 1888, **42**, 326.

[42] These observers did not consider possible dilution of the blood by tissue fluids, and they transferred the observations on capillary stagnation in the frog to explain the conditions they found in the rabbit. The importance of the results, in relation to the nature of shock, warrants a careful repetition of the experiments under more critical conditions.

[43] Bence: Ztschr. f. klin. Med., 1906, **58**, 203.

[44] Cohnheim: Lectures in Pathology, London, 1889, **1**, 466.

[45] Denning and Watson: Proc. Roy. Soc., 1906, **78**, 318.

[46] Cowell, E. M.: The Initiation of Wound Shock, The Journal A. M. A., this issue, p. 607.

[47] Weil: München. med. Wchnschr., Sept. 11, 1917.

[48] Hough and Ballantyne: Jour. Boston Soc. Med. Sc., 1899, **3**, 330.

[49] Henderson, L. J.: Am. Jour. Physiol., 1908, **21**, 441.

[50] Hooker: Am. Jour. Physiol., 1912, **31**, 58.

causes relaxation of vascular muscle. And Gaskell,[51] and also Bayliss,[52] proved that other acid, for example, lactic, which results from inadequate oxidation, has the same effect as carbonic acid. According to Severini's[53] studies, both microscopic and physiologic, the capillaries also are dilated by carbonic acid. Barcroft[54] has measured the increase of acid in blood coming away from the submaxillary gland after it had been stimulated to secretion by epinephrin, and accounts for the greater flow of blood through the gland, when thus made active, by the local dilator effects of the acid metabolites. As acid develops in tissues poorly supplied with oxygen, the blood vessels locally affected by these acids might reasonably be expected, on the basis of the foregoing evidence, to undergo relaxation.

An antagonistic factor is found, however, in the action of H-ions on the vasomotor centers. Oxygen lack, increase of carbonic acid in the blood, or injection of weak organic acids, all of which increase the H-ion content, stimulate the vasomoter center and cause a rise of blood pressure.[55] Thus, in acidosis with increased H-ions in the blood, vessels under nervous control would be subjected to impulses which would cause them to contract. This evidence harmonizes with that presented earlier, that in shock the arterioles are in constriction. Probably most veins are likewise involved in the subjection to nervous discharges. The capillaries, however, would be affected by the local increase of H-ions, and being dilated would be capable of holding an extra amount of blood. Some veins, likewise, might be relaxed. Thus capacity for the lost blood would be provided in the small vessels of the tissues rather than in the large venous trunks.

2. Increase of the carbonic acid of the blood affects *cardiac contraction*. As previously noted, Patterson[30] has shown that when the H-ions are increased by this means, cardiac muscle relaxes to a greater extent during diastole and contracts less forcibly in systole, *so that the output is diminished*. This condition again would tend to result in further impairment of the circulation.

3. Increase of carbonic acid increases *the viscosity of the blood*. Bence[43] reports that by breathing an atmosphere rich in carbon dioxid, the viscosity of the blood may be increased by from 25 to 52 per cent., and according to Ferrai's[56] experiments, asphyxiated blood has a viscosity approximately double that of oxygenated blood, the increase rising as the carbonic acid content rises. *This factor would cooperate with* low arterial pressure, concentration of corpuscles, and cold, as agencies operating to produce stagnation of corpuscles in capillaries.

4. Hamburger[57] has noted that the *size of corpuscles* is increased by the action of carbonic and other acids. The change need be only a slight one to produce demonstrable results, as, for example, when the arterial blood becomes venous. If the arterial blood contains an excess of H-ions, it would deliver to the systemic capillaries enlarged corpuscles. Corpuscles stagnant in regions ill supplied with circulating blood, where acid metabolites are most concentrated, would be especially subject to enlargement. In some of our hematocrit readings we found that the capillary corpuscular volume was greater compared with the venous corpuscular volume than it should have been according to the ratio of corpuscular and venous counts. The discrepancy was greatest in severe acidosis. The larger corpuscles might find obstruction to their progress where smaller corpuscles would not, and in any case might raise the viscosity of the blood.

All these effects of increasing the H-ions of the blood—relaxation of vessel walls (especially the capillaries), weakening of cardiac contraction and increase of blood viscosity—would be favorable to a continuance of low blood pressure. It seems probable, therefore, that when acidosis is once established, it would tend to continue the disturbances of the circulation which have been produced by other conditions.

Vicious Circles in Shock

In relation to the observations and inferences discussed above, it is of interest to consider some of their interrelations. In all probability a number of vicious circles would be started which, if not interrupted, would lead to an aggravation of the already existent abnormal state, and which would account for the progressive nature of fatal shock. The following possibilities may have suggestive value:

1. The retarded blood flow in cooled capillaries would result in a lessened supply of heat to the regions of stasis; the parts would thus become still cooler; the cooling would increase still further the viscosity of the blood, and thereby the blood flow in the capillaries would be still further retarded.

2. Increase in the *number* of corpuscles per cubic millimeter increases the viscosity; thus the more the blood *concentrates in some of the capillaries* the more friction would there be in driving the corpuscles through them, and consequently a still greater accumulation in these capillaries might be expected.

3. As more blood accumulates in capillary areas, less is returned to the heart; the arterial pressure in consequence continues to fall, the force driving the blood through the capillaries is thereby progressively lessened, and the tendency for blood to gather in the capillaries where the passages are narrowest and the friction greatest is continuously augmented.

4. As the blood pressure falls, the "head" normally in the arteries is largely lost and becomes insufficient to maintain the circulation equally in all parts of the body; the blood would be forced through capillaries in which resistance is slight rather than through those in which it is increased; the blood flow in cooled, clogged capillaries, as those of the limbs, would thus tend to be gradually diminished, with resultant greater stasis.

5. *An increased H-ion content* of the blood lessens the rate and the amount of union of oxygen with hemoglobin,[58] and a lowered temperature (in cooled tissues) lessens the rate of dissociation of the oxygen; a diminished oxygen supply would interfere with cellular oxidation, and thus increase the amount of fixed acid in the blood; this in turn would check the oxidative processes in the cells and interfere with heat production; in consequence, through cooling and greater acidosis, the abnormal state would be made worse.

---

[51] Gaskell: Jour. Physiol., 1880, **3**, 66.

[52] Bayliss: Jour. Physiol., 1901, **26**, xxxii.

[53] Severini: Ricerche sulla Innervazione dei Vasi Sanguini, Perugia, 1878, p. 96; La Contractilita dei Vasi Capillari, Perugia, 1881.

[54] Barcroft: The Respiratory Function of the Blood, Cambridge, 1914, p. 154.

[55] Mathison: Jour. Physiol., 1910, **42**, 283.

[56] Ferrai: Arch. di fisiol., 1904, **1**, 385.

[57] Hamburger: Osmotischer Druck und Ionenlehre, Wiesbaden, 1902, **1**, 296.

[58] Barcroft: The Respiratory Function of the Blood, Cambridge, 1914, pp. 27 and 53.

6. As arterial pressure falls and acid accumulates in the blood, the kidneys, because of the low pressure, become less and less active; fixed acid consequently accumulates still further in the blood, and the disturbing condition is thus augmented.

Doubtless there are still other ways by which the abnormal factors may interact so as gradually to lessen the chances of recovery for the shocked individual. All these deranging processes, however, require appreciable time for their operation. It is important, therefore, that the treatment of shock be prompt, and directed toward preventing an increase of the unfavorable conditions.

Shock as "Exemia"

The view developed in the foregoing discussion that in shock the circulatory difficulty is due to loss of blood from circulation, though not from the body, is one which has been growing in recent years, as experimental data have accumulated. The general condition was first reasoned out by Malcolm,[59] and later the idea was greatly elaborated by Henderson,[60] both of whom supposed that the lost blood was gathered in the veins. Still later, Mann[33] expressed the same idea, declaring that in shock there is a loss of circulatory fluid at a point beyond vasomotor control. And more recently the idea has been generalized for various shocklike states, traumatic and toxic, and the suggestion offered that capillary concentration might occur.[61] In all these states the essential feature appears to be a draining or holding back of blood from normal currency.

This view of "shock" is so different from that which probably gave reason for the original use of the term—a sudden collapse due to a severe wound—that a more descriptive name seems needed. The general employment of the word "shock" for a variety of meanings, as, for example, emotional shock, shell shock, concussion shock, besides traumatic or surgical and toxic shock, points likewise to the need of a new designation. The word *exemia* was employed by Hippocrates and signifies "drained of blood." As the discussion presented above has indicated, such is the condition in the shocked man who has not bled—his blood pressure is low because essential parts of the circulatory system have been drained of blood. The term *exemia* may properly be used to describe this condition.

A Concept of the Development of Shock or Exemia

Although an addition to the already numerous theories of shock seems uncalled for, the facts presented in the present series of papers may be worthy of an attempt at correlation in a general statement. These facts may be listed as follows: There are primary wound shock with rapid lowering of arterial pressure, and secondary wound shock with toxemia and hemorrhage, and later lowering of the pressure. Sweating occurs, leading to loss of fluid and loss of heat from the body. The blood becomes stagnant and concentrated in the capillaries, and as the blood pressure falls there is loss of the alkali reserve of the blood (acidosis) roughly corresponding to the drop in pressure. After the discussion in the foregoing pages, how may these facts be set together consistently?

Primary wound shock—dusky pallor; rapid, thready, low tension pulse; hypotension; sweating; thirst, and restlessness—may come on so soon after injury as to be accounted for only as the result of nervous action. The organization of the individual (for example, a "high strung" temperament), fear and fatigue probably provide favorable conditions for the nervous response. Cowell's observation of fainting after slight wounds may perhaps be regarded as a transient state which in true shock is more persistent. Sweating and exposure lead to rapid loss of heat from the body; previous sweating, wetness of the clothing, and low external temperature favor the process. Inactivity of the wounded man and absence of shivering lessen heat protection. Thus the body becomes cold, especially the surface and extremities. In consequence of the low blood pressure, aided by the chilled tissues, there is a stagnation of corpuscles in the capillaries. The onward flow here checked undergoes concentration, so that the capillary red count is high. Prolonged lack of fluid and sweating may favor the stagnation and further concentration of the blood. The low arterial pressure can continue a flow through easy channels, but is insufficient to maintain the normal flow where resistance is high. Thus cooled regions receive less heat from the interior of the body and tend to become cooler, and thus in turn more blood accumulates. By accumulation in capillaries the return of blood to the heart is lessened until a persistent low blood pressure becomes established. The blood lost from currency produces a state equivalent to hemorrhage. Any true hemorrhage therefore exaggerates the existent shock (exemia).

When a wound has not caused a primary fall of blood pressure, but has rendered the control of the circulation unstable, unfavorable conditions, such as cold, hemorrhage and toxemia, will bring about the same sequence of events that is seen in primary shock.

As the low blood pressure continues, the alkali reserve of the blood is reduced (acidosis). Previous starvation and fatigue would favor the development of acidosis. This state, by locally relaxing vessels which are not under nervous control, by weakening cardiac contraction, and by increasing the viscosity of the blood, tends to make worse the dangerous condition which has been established. And, as pointed out in an earlier paper, the individual with acidosis is sensitized so that operation, because still further increasing the acidosis and still further lowering blood pressure, becomes hazardous.

This conception of the events that take place in a wounded man who passes into shock gives a reasonable account of the primary effect of wounds, the influence of cold in continuing the low blood pressure or inducing it when the circulatory apparatus is unstable, the influence of warmth in restoring him in part to a fit condition, and the slowness of a full recovery. It leaves unsettled the occasion for the primary fall of pressure, though the suggestion is offered that it may be of reflex character, similar to fainting. The conception offers a hopeful outlook for the care of the shocked man, because two of the most potent factors making his chances unfavorable, cold and acidosis, can be controlled.

---

[59] Malcolm: Tr. Med. Soc., London, 1909, **32**, 274.

[60] Henderson: Am. Jour. Physiol., 1910, **27**, 152.

[61] Medical Research Committee, London: Memorandum upon Surgical Shock, Brit. Med. Jour., March 24, 1917. Janeway and Jackson: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 193.

THE PREVENTIVE TREATMENT OF WOUND SHOCK

W. B. CANNON, M.D. (BOSTON)
Captain, M. R. C., U. S. Army
JOHN FRASER
Captain, M. C., R. A. M. C.
E. M. COWELL
Captain, R. A. M. C., S. R.
FRANCE

Introduction

Whatever the nature of the bodily changes which underlie the state of shock, it is evident that the circulatory functions are in a precarious condition, and that the heart, nervous system and other organs are suffering from an insufficient blood supply. Everything should be done to promote the factors favorable to restoration of a normal and stable blood flow, and anything unfavorable to such restoration should be scrupulously avoided. There are certain practices, such as the prompt arrest of hemorrhage, the lessening of sepsis by appropriate dressings, and the reduction of pain by suitable splints, by the judicious use of morphin, and by careful transport, that are generally recognized as important measures in the care of a wounded man who is shocked or liable to shock. Besides these there are other precautions which are suggested by observations reported in the foregoing papers.

In previous papers of this series, evidence has been afforded, among others, on the following points:

1. Cooling of a person in shock is attended by a further lowering of an already low blood pressure or by continuance of the pressure at a low level.
2. Surgical operation performed on a person in shock is accompanied by a rapid and large increase of an acidosis which is already present, and by a correspondingly sudden and extensive fall in an existent low arterial pressure.

These two sets of changes are both harmful, and may turn the slender chances of a shocked man definitely away from safety and into disaster. The dangers of both cooling and surgical operation, however, can be dealt with in ways which will lead to their avoidance. The protection of the wounded man against conditions which would develop or increase shock offers, we believe, the greatest hope for his recovery.

In the following account are presented suggestions, based on preceding papers,[1] for the prevention and early treatment of wound shock and for the preparation of the shocked man for surgical operation.

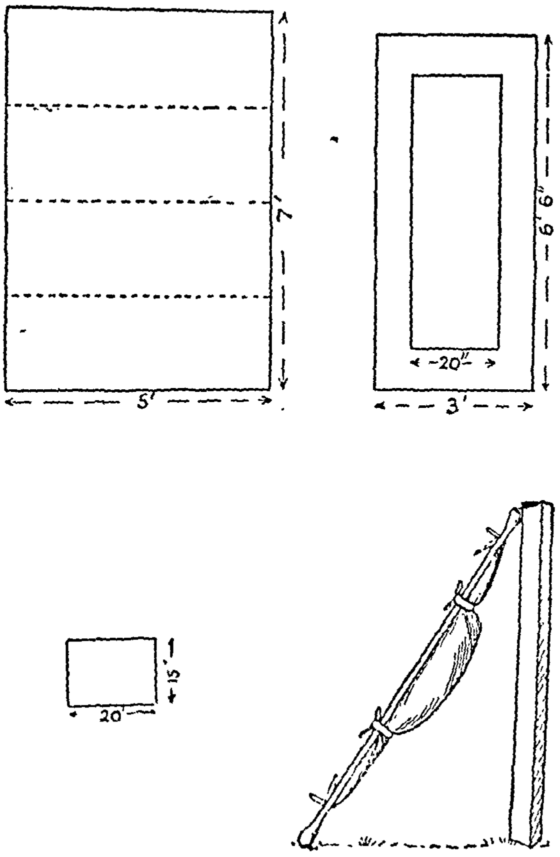


Fig. 1.—Method of carrying a dry blanket.

The Prevention and Early Treatment of Wound Shock

The reader will recall that of the three classes of wounds, Class B, those of moderate severity, may, through the effects of cold, hemorrhage and toxemia, develop into secondary wound shock; and that Class C, those of such severity as to endanger life unless early surgical treatment is given, show primary wound shock. Without proper care the case of secondary shock may be unnecessarily fatal, and with care the patient with primary shock may be tided over a critical period and brought to a casualty clearing station in a still operable condition.

The actual carry along the line of evacuation will vary greatly, according to the military situation and to uncontrollable circumstances, such as the weather, for example. The average wounded man on the Western front passes through the hands of several relays of bearers and at least three or four medical officers before he reaches a clearing station. Stretcher carrying along narrow trenches in the dark is laborious and slow work, even under good weather conditions. Bad weather doubles or quadruples the time required for the first stages of the journey.

If a man is hit in the front line trenches he may be at least one or two hours' journey away from the regimental aid post. And a man in a working party, a little farther back, may be as far away from the advanced dressing station. The observations recorded in the article on the initiation of wound shock have shown that it is in this stage of the journey that secondary wound shock develops, and that one of the chief factors in its initiation is loss of body heat.

To send blankets to all parts of the line is impossible, but by the adoption of a waterproof sheet-blanket "packet" system a stretcher prepared for use is provided with means for preventing excessive loss of body heat. Reference to Figure 1 will make clear this simple method of carrying a dry blanket. This method has already been put into practice in a large part of the line.

All regimental stretchers at advanced bearer posts in the front line, and stretchers carried by working parties, should be equipped with this packet. The regimental bearers should be insistently instructed by their medical officer as to the importance of doing everything to prevent wound shock. The wounded man should be guarded as much as possible against loss of heat. Efficient first-aid should be given rapidly without unduly exposing the patient to the cold for a prolonged period. A hot drink should be given at the earliest moment. Then, having been carefully wrapped up, the patient should be carried down with all speed to the regimental aid post. A well trained, intelligent orderly might be entrusted to give a tablet of morphin (one-fourth grain) by mouth in cases of severe pain.

---

[1] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531. Cowell, E. M.: The Initiation of Wound Shock, this issue, p. 607.

A note of this treatment should be made in the usual way.

At the *regimental aid post* it is wise to consider the general condition of the patient first and his wound second. A dry stretcher with three blankets should always be in readiness for a possible case at any time of the day or night. In the properly equipped aid post there will be a constant source of heat, such as can be supplied by any good type of small closed stove or a small open brazier with a flue to carry off coke fumes. Space will be limited; but an open stretcher, together with three blankets folded lengthwise three times, may be kept supported horizontally against the wall of the dugout behind the stove. A dry stretcher and a supply of warm blankets will thus always be at hand. A tin of water may be kept standing on the fire to provide for hot drinks and for filling hot-water bottles.

As soon as a patient arrives he should be given a few ounces of hot drink, and his wet boots and puttees removed, along with any other clothing which may cover wounds. Meanwhile the dry stretcher is prepared by arranging the first two blankets so that four folds will come underneath the patient (Fig. 2). The blankets are covered temporarily with a waterproof sheet to prevent soiling while wounds are being dressed. The man is now transferred to this prepared stretcher, which is supported on trestles and stands well over the stove. The third or free fold of each of the lower two blankets hangs down on either side and helps to form an enclosed warming chamber. If there is no constant source of heat, a hot air chamber may be made in a few minutes by use of a Primus or Beatrice stove.[2]

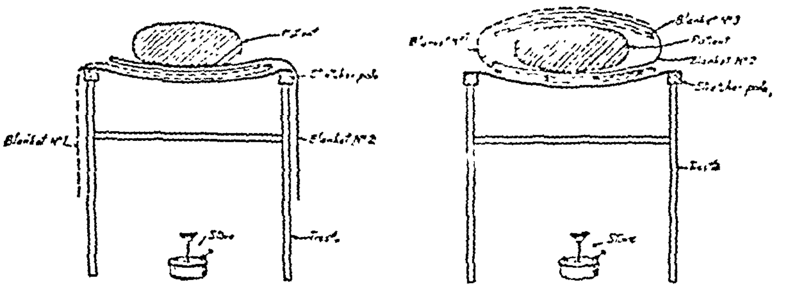


Fig. 2.—Method of folding three blankets to give four folds above and below the patient; also the formation of a hot air chamber.

The patient is now becoming warmed, while the medical officer is attending to the surgical cleansing of the wounds and neighboring parts, and is applying proper dressings and splints. As soon as the dressings are finished, well guarded hot water bottles are placed in each axilla and a third across the loins or between the legs; and the third blanket, which is doubled lengthwise, is laid over the patient. The two warmed blankets which have been hanging to form the sides of the hot air chamber are lifted, carried over the patient, and tucked in. He now has four folds of blanket over him as well as underneath.

Finally, just before the patient is sent off, he is given a hot drink of sweetened tea in which a dram of sodium bicarbonate is dissolved.

At the *advanced dressing station* the warming process with the Primus stove may be repeated, but usually without changing the stretcher and blankets. Meanwhile, any necessary treatment is carried out. Before the patient is sent on, a hot sweetened alkaline drink is administered as described above, and a fresh set of hot water bottles is put in place.

The next stage of the journey is usually undertaken by means of some mechanical transport, such as a narrow gage railway or a motor ambulance. The cars are at present warmed, so that there is a lessened chance of loss of body heat on the final stages of the journey.

At the *clearing station,* application of warmth should be emphasized as the most important part of the treatment in all serious cases. While the patient is being undressed and made ready for operation, he should be put over the same hot air chamber as has already been described. Electric warming apparatus, to be set over the patient, is at hand to apply as soon as he is ready, but it will not permit handling and treatment as will the heating from below.

While operating, again, every care must be taken to prevent loss of heat, even in summer. An electrically heated operating table is invaluable.

MODIFICATIONS OF TREATMENT IN BATTLE CONDITIONS

The outlines of early treatment, sketched in the preceding paragraphs, apply to such conditions on the Western front as are "normal" for the greater part of the year. In battle, the early exposure to cold will not be so important in most cases. But, as a result of previous fatigue and loss of body fluid by sweating and hemorrhage, together with the establishment of infection and the onset of toxemia, secondary wound shock develops. Whereas the appearance and degree of primary wound shock depend on the degree of damage done to a vital organ, secondary wound shock is proportionate to the length of time the pernicious factors are allowed to work—in other words, to the period during which the wounded man is "lying out."

In the rush of dealing with large numbers, it will be impossible in the line to attend to all the details described above. Large drafts of hot sweet tea made alkaline with sodium bicarbonate can, however, be easily provided, and should be given whenever the shocked patient complains of thirst at the dressing station or at any other suitable point on the way down to the clearing station.

PROTECTION AGAINST THE EFFECTS OF SURGICAL OPERATION

Evidence presented in an earlier paper showed that the acidosis which prevails in cases of low blood pressure is associated with such sensitization of the body that surgical operation may result in a serious increase of the acidosis and a perilous sinking of the blood pressure. The question as to the causal relation between low pressure and acidosis has been discussed, and it appears that the two conditions may interact, each contributing to the development of the other. Under these circumstances, advantage would be gained by protection against each of the conditions—first, against the development of the sensitizing acidosis, and, secondly, against the increase of acidosis and the further fall of blood pressure which occur at operation.

---

[2] A Primus stove of ordnance pattern will burn a gallon of paraffin in twenty-four hours if operating continuously.

PREOPERATIVE PROPHYLAXIS

In the acidosis of diabetes, Asiatic cholera, nephritis and other pathologic states, the urine can be rendered alkaline by administration of sodium bicarbonate by mouth, as has been shown by Sellards,[3] Palmer and Henderson,[4] and other observers. The change in the reaction of the urine implies an abundance of available alkali in the blood. The possibility of fortifying the body against a reduction of the alkaline reserves in surgical cases was demonstrated by Caldwell and Cleveland.[5] They gave sodium bicarbonate by mouth and found that the normal reserves can be so increased as to avoid wholly the drop in carbon dioxid capacity that occurs in the period preparatory to operation, and also to reduce by half the rate of drop that takes place during operation. The degree to which available alkali can be provided by giving sodium bicarbonate by mouth in cases of shock and gas infection is shown in the following case:

German *Unteroffizier* H.—Admitted, August 15, with wounds of both buttocks, but in good condition. The next day the pressure was low (78 and 56), and the carbon dioxid capacity 48 per cent. Alkaline drink had been started and was continued at two-hour intervals. On the second day the wounds were evidently extensively infected with gas, but the blood pressure was 102 and 66, and the blood had a carbon dioxid capacity of 61 per cent. In spite of operation, the infection spread and death resulted.

The results obtained in the foregoing case confirm the results obtained by others in showing that by administration of sodium bicarbonate the alkaline reserves of the body can be greatly increased even in unfavorable circumstances. Since acidosis develops in shock and involves a definite risk when operation is undertaken, its avoidance should be sought. The recommendation is offered that wounded men be provided with a warm drink containing a dram, or 4 grains, of sodium bicarbonate at suitable relay posts on their way from the front to casualty clearing stations, as indicated in the first section of this paper.

OPERATIVE PROPHYLAXIS

When a wounded man, badly shocked, is brought to a clearing station, he commonly must be operated on in spite of a low blood pressure and its attendant acidosis. The lapse of time when a man is in this condition gives opportunity for the extension of infective processes which gravely menace his chances. The surgeon has to choose, therefore, between an operation when the risk is serious, and a delay during which toxemia may develop to a menacing degree.

The low blood pressure of shock has been met hitherto by the injection of normal or hypertonic salt solution, or by combinations of salt solutions and gum. There is no doubt that in some cases such injections have had definitely beneficial effects. As shown in the previous papers, part of the pathology of shock is due to a loss of fluid from the circulation and consequent concentration of the blood. The injection of salt solution adds fluid to the body and improves the circulation, so that the concentration is soon abolished,[6] and the viscosity of the stagnant blood lessened. In such cases, however, the degree of acidosis had not been determined, and injection of physiologic sodium chlorid solution or Ringer's solution makes no provision against such critical turns as have been encountered during operation or shortly thereafter in consequence of increased acidosis.[7] Not only does ordinary salt solution fail to combat acidosis, it actually *increases* an already existent acidosis. Milroy[8] has recently shown that hemorrhage results in a loss of reserve alkali, and that then injection of sodium chlorid solution alone causes a *greater* H-ion concentration of the blood exposed to a given pressure of carbon dioxid than was present before the injection.

What is wanted is a fluid that will have the advantages already demonstrated for salt solutions — thinning of concentrated blood, lessening of viscosity and increase of blood flow with restoration of arterial pressure — together with antagonism to the state of acidosis. Such a fluid is found in sodium bicarbonate solution. Howell[9] observed years ago that alkaline injections (sodium bicarbonate) into a vein or into the rectum raised a systolic pressure of 60 or 70 mm. permanently to the normal level, and caused a marked increase in the force of the heart beats. If the pressure was lower (from 20 to 30 mm.) it was raised to 60 or 70 mm. Also the effects were relatively permanent, lasting one or more hours. These observations were confirmed by Dawson.[10] Either intravenous or intrarectal injections of sodium bicarbonate can restore the alkali reserve and abolish an existent acidosis.[11]

Injection of a fluid that will increase blood pressure has dangers in itself. Hemorrhage in a case of shock may not have occurred to a marked degree because blood pressure has been too low and the flow too scant to overcome the obstacle offered by a clot. If the pressure is raised before the surgeon is ready to check any bleeding that may take place, blood that is sorely needed may be lost. Fortunately, the injection may be made at the start of operation, just after the patient has been prepared and when the surgeon is ready to stop any hemorrhage, and it may continue as the operation proceeds.

The fluid that was injected in the cases recorded below was a 4 per cent. solution of sodium bicarbonate. Since 1.5 per cent. sodium bicarbonate is approximately isotonic with the blood plasma, the 4 per cent. solution is rather strongly hypertonic. It had previously been employed, however, in treating cases of diabetic coma,[12] and if introduced slowly (at the rate of an ounce a minute), it causes no noteworthy alteration of the blood. The fluid should, of course, be delivered to the body at approximately body temperature — it may be a few degrees warmer, but should not be colder, than that. If the solution is passed through a tube of considerable length before it enters the vein, it should have a temperature maintained between 110 and 115 F.

The boiling of sodium bicarbonate in solution changes it to sodium carbonate. Since the bicarbonate should be injected, it should not be boiled. The solution should be made just before it is to be used, by the addition to warm sterile water the proper amount of the sterile salt.[13]

---

[3] Sellards: Philippine Jour. Sc., 1910, **5**, 313; Bull. Johns Hopkins Hosp., 1912, **23**, 289.

[4] Palmer, W. W., and Henderson, L. J.: Clinical Studies on Acid Base Equilibrium and the Nature of Acidosis, Arch. Int. Med., August, 1913, p. 153.

[5] Caldwell and Cleveland: Surg., Gynec. and Obst., 1917, **25**, 22.

[6] Cannon, W. B.; Fraser, John, and Hooper, A. N.: Some Alterations in the Distribution and Character of the Blood in Shock and Hemorrhage, The Journal A. M. A., Feb. 23, 1918, p. 526. Cases 65 A and 60 A.

[7] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, The Journal A. M. A., Feb. 23, 1918, p. 531.

[8] Milroy: Jour. Physiol., 1917, **51**, 277-279.

[9] Howell: Am. Jour. Physiol., 1900, **4**, 14.

[10] Dawson: Am. Jour. Physiol., 1904, **10**, 35.

[11] Milroy: Jour. Physiol., 1917, **51**, 278-281.

[12] Peabody: Am. Jour. Med. Sc., 1916, **151**, 198.

To inject the solution it is usually not necessary to lay bare a vein and introduce a cannula. If a small rubber tube is drawn around the upper arm as a tourniquet and held by a looped twist (not so tightly as to obstruct the arterial flow, which, it will be noted, has a low pressure), the veins in the elbow will in most cases become sufficiently prominent to permit a hollow needle to be introduced into one of them. The lumen of the needle should be large enough to permit a pint of the bicarbonate solution to pass in fifteen or twenty minutes when the head of pressure is only 2 or 3 feet. A glass reservoir marked in ounces permits a judgment as to the proper rate of flow. As soon as the needle enters the vein, an outflow of blood through the lumen gives evidence. When the blood thus appears, the tourniquet should be pulled loose, the rubber tubing full of the solution should be connected with the needle, and the flow allowed to start. In some few cases the veins are so obscure as to make this procedure difficult or impossible; in that case the needle or a small cannula must be inserted into the bared vessel.

The following cases illustrate results which have been obtained when the solution of sodium bicarbonate has been injected in the manner described above:

Private R. M., wounded 9:30 p. m., September 24, sustaining a compound fracture of the left tibia and fibula, and a wound of the hand, was admitted, 11:30, September 25, with severe gas infection of the leg; temperature 96; blood pressure, 96 and 50. Operation was begun at 12:40; the carbon dioxid capacity, 40 per cent. One pint of sodium bicarbonate solution was injected. Operation ended at 1:25; blood pressure, 100 and 60; carbon dioxid capacity, 63 per cent. The pressure was lower in the afternoon (4:30), 74 and 46, but the next morning it was 112 and 66, and it did not again fall below normal limits.

Private J. B. was admitted, September 24, with a gunshot wound of the head (three deep lacerations), contusion of left eye, fracture of both bones of the left leg, and the left foot blown off. Unconscious from cerebral injury. Blood pressure at 11:35, 54 and 20. Operation begun at 11:47; carbon dioxid capacity, 42 per cent. One pint of sodium bicarbonate solution was injected. Operation ended 12:22; blood pressure 112 and 40; carbon dioxid capacity, 58 per cent. The patient lived until the evening of the next day, and died without regaining consciousness.

Private F. B. was admitted, September 9, with one foot mangled and wounds of the right thigh and right shoulder. Wounded at 3:30 a. m.; at 11:30 a. m., just after admission, temperature 98.4, pulse 144, blood pressure 75 and 46; sweating, thirsty, face and lips pale. Operation begun at 2 p. m.; pulse 144, blood pressure 72 and 42, carbon dioxid capacity, 36 per cent. One pint of sodium bicarbonate was injected. Operation ended at 2:40; pulse 120, blood pressure 104 and 50. At 11:30 the pulse was 110, but as the patient was asleep the pressure was not taken. The next day (9 a. m.), pulse 98, blood pressure 128 and 70. Gas infection required removal of leg in the afternoon. The patient stood the operation well, and made a smooth recovery.

Private H. H. was admitted, October 3, with the left foot blown off; he had lost much blood. The pulse was thready and rapid. Operation was started at 5:10; systolic pressure 62; diastolic pressure unreadable; carbon dioxid capacity, 42 per cent. One pint of sodium bicarbonate solution was injected. Operation ended at 5:40; blood pressure 62 and 46; pulse slow and easily palpable. The next morning (9:30), pulse 96, blood pressure 104 and 72. The patient recovered.

Private F. W. was admitted, September 26, with a compound fracture of the left thigh and a wound of the left hand. Wounded 11 p. m., September 25. At 4 a. m., September 26, just after admission, temperature was 96.6, pulse 132, blood pressure 98 and 70. Operation was begun at 4:50; carbon dioxid capacity, 34 per cent. Pressure fell to 82 and 50, pulse 160. One pint of sodium bicarbonate solution was injected. At 5:35, blood pressure was 110 and 85, carbon dioxid capacity, 68 per cent. At 9:15 a. m., blood pressure 124 and 90, and at 4:30 p. m., pulse 120, blood pressure 128 and 98. A smooth recovery followed.

Sometimes a patient apparently in a condition fit for operation becomes badly shocked as the operation proceeds. The following case illustrates the use of the bicarbonate solution in such circumstances:

Private D. was wounded by shrapnel at 10:30 a. m., September 19. He complained of sweating within less than five minutes of being hit. Seen by Cowell at 11 p. m.; pulse 96, blood pressure 104 and 70; cold, pallid, sweating. Admitted to the clearing station at 11:45; blood pressure 82 and 70, pulse 96, temperature 96. At operation ten large tears of the small intestine were found, and much blood in the abdominal cavity. At the end of operation the blood pressure was unreadable. One pint of sodium bicarbonate solution was injected; blood pressure rose to 85 and 60. In the evening the pressure was 86 and 60. The following morning it was 82 and 60, and the patient was in excellent condition. That evening the pressure was 102 and 80. On the next morning, September 21, the pressure was 112 and 90. The recovery was uneventful.

The foregoing cases show that an alkaline injection at the start of anesthesia prevents the dangerous depressive effects which the anesthetic and operative procedures have in cases of shock with acidosis. The operation ends, not with an increase of the existent acidosis, but with the acidosis overcome and a normal alkaline reserve provided. And the blood pressure, instead of being perilously lowered, is actually raised during the critical period. The blood pressure may fall to some extent later, but the improved state of the patient during operation is unmistakable, and the subsequent course of shock cases in which operation has been performed with the precautions described above has been highly gratifying.

In concluding this series of papers, we take pleasure in expressing our thanks to Col. Cuthbert Wallace, C. M. C., A. M. S., and to Col. T. R. Elliott for facilitating arrangements to carry on the work and for counsel; to Lieut.-Col. Winder, R. A. M. C., for cooperative interest; and to the Medical Research Committee and the American Red Cross in France for instruments used in the investigations.

Work for Health in Bureau of Mines.—During the year ending June 30, 1916, according to the Year Book of the Bureau of Mines for that year, 62,693 miners visited the mine rescue cars and stations, 43,060 attended lectures and safety demonstrations, 285 received mine rescue training, 5,598 were given both first aid and mine rescue training. The total number trained was 9,493, which is an increase of 494 over the previous year. The work has been popular and many requests have been received for instruction by the bureau. The casualty insurance companies have recognized the value of the bureau's first aid and mine rescue training by reducing their rates for any mine that has a certain number of men trained by the bureau.

---

[13] An ideal injection fluid for shock cases would be a solution with colloid added, as Bayliss (Proc. Roy. Soc., 1916, **89**, 380) has suggested, for example, one containing sodium bicarbonate in proper amount and 6 per cent. gum acacia. (See further Bayliss: Injections to Replace Blood, Memorandum 1, of Reports of the Special Investigation Committee on Surgical Shock and Allied Conditions, Nov. 25, 1917.) Unfortunately, the gum contains calcium, which precipitates as calcium carbonate as sodium bicarbonate is added. If this precipitate is filtered out, the solution has the advantages of being both alkaline and viscous. The Medical Research Committee is preparing to provide in bottles sterile solutions of 6 per cent. gum, to which 2 per cent. sodium bicarbonate has been added, and the deposit filtered out.

Special Article

GASTRO-INTESTINAL EPIDEMIC AT PEORIA, ILLINOIS

(*By Our Special Investigator*)

During the week beginning February 18, the city of Peoria, Ill., was visited by an epidemic of intestinal trouble affecting a large number of people. This number was variously estimated at 3,000, 10,000 and 20,000. Certain it is that nearly every family was attacked, and sometimes every member of the household suffered. Cases began to develop on the 18th, Monday, the epidemic reached its height on Wednesday and Thursday, and then gradually subsided—a comparatively few cases appearing as late as Monday, February 25.

The most universal symptom was an acute diarrhea, appearing with no warning. This was accompanied in many cases by vomiting, some fever, abdominal tenderness, puffing of the arms, hands and cheeks, and backache. Fainting was reported in some instances. Attacks were as a rule brief, patients entirely recovering in from twenty-four to forty-eight hours. Only one death was reported, that of a baby who had previously had malnutrition troubles, but who actually died from a gastro-intestinal attack. An investigation into the probable source of the epidemic was undertaken by your correspondent, February 24 and 25.

Peoria is a city of from 75,000 to 80,000 inhabitants. Many of the surrounding towns are closely connected with Peoria in both a business and a social way, and were involved to some extent in this epidemic. Serving as the distributing center for food over a considerable district, the city is in close touch with the large food concerns of Chicago. The milk supply comes from fifty or more small dairy farms in the vicinity, is not pasteurized, and is not under a very strict supervision of the health authorities at the present time.

The water comes from a series of wells sunk near the Illinois River. The main well is 60 feet deep and 34 feet in diameter, and at the present writing is about 100 feet from the river. Five other wells are nearby, the cupola tops of some of them being surrounded by water. The other wells are farther up the river and about a quarter of a mile inland. These are newer wells, are 90 feet deep and 7 feet in diameter, and your correspondent was informed that the present supply was being drawn from the main well together with the latter wells, used alternately. The pumping station is near the main well. Water is pumped for the most part directly into the mains. A reservoir of 18,000,000 gallons' capacity serves to control the pressure and as a reserve supply in case of fire or other emergency which might tax the capacity of the pumps. The water company is privately owned, has about 13,800 services, 56 per cent. of which is metered, and supplies a population estimated at 96,000, including outlying districts as well as the city proper. Some manufacturing plants have their own well water supplies, but are connected also with the city mains. It was stated that the valves separating the two supplies were periodically examined by the water company and had always been found in good condition. The wells yield plenty of water, as high as 20,000 million gallons a day having been pumped in the summer of 1913, although the average daily pumpage during 1917 was only 8,156,000 gallons. This corresponds to an average daily consumption per capita of 85 gallons.

The quality of Peoria water has always been regarded as excellent. In fact, such reliance has been placed on it that no regular bacterial examinations are made either by the water company or the City Health Department. An examination, made Sept. 29, 1917, by the Illinois State Water Survey, revealed a gelatin count of five bacteria per cubic centimeter, an agar count of two bacteria per cubic centimeter and the following presumptive tests for colon bacilli: Four samples of 10 c.c. each, three negative and one positive; two samples of 1 c.c. each, both negative; two samples of 0.1 c.c. each, both negative. Examinations that have been made in connection with the course in bacteriology at the Bradley Polytechnic Institute indicate that the water has usually contained from ten to fifty bacteria per cubic centimeter, with no gas formers in 1 c.c. samples.

It is significant that during the summer of 1910 a diarrheal epidemic occurred in Peoria which was not, however, so extensive as the present one. Your correspondent is informed that bacterial counts of the city water made at that time gave very high results, including the presence of gas-forming organisms, and that the condition of the water returned to normal coincident with the subsiding of the epidemic. No thorough investigation of the water supply appears to have been made at that time.

As is well known, the weather conditions this winter have been extraordinary. The mean temperature during January of 10 at Peoria was the lowest for that month recorded in the history of the weather bureau, that is, since 1856, and February came in with 9 inches of a snowfall of 16.9 inches still left on the ground. The thaw started on the 6th of February, and the thermometer remained above freezing until the 13th. By this time most of the snow had disappeared and the river started to rise, reaching almost a flood stage on the 18th. This epidemic followed closely on the thaw with its resulting high water.

By a study of the epidemiologic characteristics, some of the possible sources of infection can well be excluded. The most pronounced features are the widespread distribution, the sudden onset and brief period covered. These factors could be involved only where the infecting agent was widely disseminated, appeared in large amount, and quite rapidly disappeared. On this basis any one food with the exception of milk can be at once excluded, since there is nothing which every one buys and uses in quantity at exactly the same time. In this instance the milk supply also can be eliminated for, as stated above, this comes from a large number of small dairies, and the possibility of their all being infected at one and the same time is remote.

Gastro-intestinal disturbances of this nature due to bacterial infection are not known to be transmitted through the air.

The water situation should therefore be studied with some care. Officials of the water company stated that as far as they knew nothing unusual had occurred in the operation of the water supply system during the past two weeks. Since, however, no regular examinations are being made, there seems to be no assurance of continuous purity of the water.

Some evidence has appeared as to the character of the water during the epidemic from the work of Prof. W. H. Packard, head of the department of biology of the Bradley Polytechnic Institute, who, on his own initative, examined samples of city water drawn from the tap at his house into sterile containers. The first sample was taken Thursday, February 21, and gave a count of 1,530 bacteria per cubic centimeter on agar at 37 C. after twenty-four hours. Lactose-fermenting organisms were obtained in two 1 c.c. and in two 5 c.c. samples. Professor Packard again made tests on samples of water collected Saturday, and this time obtained 142 bacteria for his count with no acid colonies; and no gas formers were found in 5 or 1 c.c. samples after twenty-four hours.

Your correspondent was informed that in the week of February 11, an engineer employed at the water company's pumping station had died after an operation. It seems fair to assume that this necessitated some change in employees at the pumping station.

The epidemiologic evidence, together with that obtained from Professor Packard showing an unusually large number of bacteria in the water coincident with the height of the epidemic, and a decrease in bacteria corresponding to a decline of the number of cases, points to the city water as the source of the infection. Sudden outbreaks of water-borne diseases coincident with temporary pollution of the water supply have often been recorded. An example of this was reported in 1912 from Rockford, Ill., where 10,000 cases of enteritis followed contamination of the water supply.[1]

Cases of intestinal disturbance similar to those in Peoria were reported during the epidemic, from surrounding towns. Five cases in Pekin, Ill., and four in Chillicothe, Ill., were followed up, and all were found to have connection with the city, most of the patients working in Peoria, and the others having been there for shopping or other purposes just prior to being taken ill. Two cases in Peoria were reported to have no connection with the use of water; but no rigid investigation was made to determine this point.

The water supply, therefore, appears to have been the responsible agent. The possibility of contamination of some wells now surrounded by Illinois River water, although not admitted to have been drawn on for supply, and the possibility of change in staff at the pumping station, add to the weight of evidence already mentioned. The actual method of this contamination can probably be best ascertained by an investigation by the officials of the water company, who have knowledge of the course of events preceding the epidemic.

---

1. Jour. Inf. Dis., 1912, 11, 21-43.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.
W. A. Puckner, Secretary.

TYPHOID VACCINE (See N. N. R., 1917, p. 312).

Eli Lilly & Company, Indianapolis.

Typhoid Vaccine, Prophylactic.—Marketed in packages of one 5-Cc. and one 20-Cc. vial, each Cc. containing 500 million killed B. typhosus; also in packages of one 5-Cc. and one 20-Cc. vial, each Cc. containing 1,000 million killed B. typhosus; in packages of three 1-Cc. vials, one containing 500 million and two each containing 1,000 million killed B. typhosus; in packages of three 1-Cc. syringes, one containing 500 million and two each containing 1,000 million killed B. typhosus. Also marketed in hospital-size packages of ten complete immunizations in thirty 1-Cc. vials.

Typhoid Vaccine, Therapeutic.—Marketed in packages of two 1-Cc. vials, one 5-Cc. vial and one 1-Cc. syringe, each Cc. containing 100 million killed B. typhosus; in packages of two 1-Cc. vials, four 1-Cc. vials, one 5-Cc. vial, one 20-Cc. vial and one 1-Cc. syringe, each Cc. containing 250 million killed B. typhosus; in packages of two 1-Cc. vials, one 5-Cc. vial and one 1-Cc. syringe, each Cc. containing 500 million killed B. typhosus; in packages of two 1-Cc. vials, one 1-Cc. syringe, each containing 1,000 million killed typhosus; in packages of four 1-Cc. vials, containing respectively 100, 250, 500, and 1,000 million killed B. typhosus; and in packages of four 1-Cc. syringes, containing respectively 100, 250, 500, and 1,000 killed B. typhosus.

Typhoid Mixed Vaccine (Typho-Bacterin Mixed).—Marketed in packages of three 1-Cc. vials, one containing 250 million each killed alpha and beta B. paratyphosus and 500 million killed B. typhosus and two containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; in packages of three 1-Cc. syringes, one containing 250 million each killed alpha and beta B. paratyphosus and 500 million killed B. typhosus and two containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; in packages of one 5-Cc. vial, each Cc. containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus; and in one 20-Cc. vial, each Cc. containing 500 million each killed alpha and beta B. paratyphosus and 1,000 million killed B. typhosus. Also marketed in hospital-size packages of ten complete immunizations in thirty 1-Cc. vials.

BULGARIAN BACILLUS TABLETS-MULFORD.—Tablets containing a practically pure culture of *Bacillus bulgaricus.*

Actions and Uses.—See the general article on Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1917, p. 163).

Dosage.—For adults and children, 1 or 2 tablets after meals and at bed time. For infants, 1 or 2 tablets with each feeding. The tablets are marketed in vials of 50 tablets. An expiration date is stamped on the label.

Manufactured by the H. K. Mulford Co., Philadelphia. No U. S. patent or trademark.

A culture of Bacillus bulgaricus grown on whey is mixed with starch, sugar and milk sugar, dried and compressed into tablets.

Henley's View of Lister.—The sonnet of Henley the poet, who was Lister's first patient in the first weeks of his Edinburgh professorship, gave a picture of Lister that no other pen could attempt to equal. It was entitled "The Chief," the name by which Lister was fondly known.

"His brow spreads large and placid, and his eye
Is deep and bright with steady looks that still.
Soft lines of tranquil thought his face fulfill—
His face at once benign and proud and shy.
If envy scout, if ignorance deny
His faultless patience, his unyielding will,
Beautiful gentleness and splendid skill,
Innumerable gratitudes reply.
His wise, rare smile is sweet with certainties,
And seems in all his patients to compel
Such love and faith as failures cannot quell.
We hold him for another Heracles,
Battling with custom, prejudice, disease,
At once the son of Zeus with Death and Hell."

Wrench, G. T.: Lord Lister, His Life and Work.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, MARCH 2, 1918

THE INHERITANCE OF ACQUIRED CHARACTERS

"When I reply to an inquirer that my own work is largely concerned with studies of heredity," an American biologist recently wrote, "I am likely to be met with the response: 'Oh, yes! — Mendel's law.' To the nonscientific reader this last expression commonly means little, except in so far as it is held to imply something thoroughly up to date. In the rather unintelligible jargon which reaches his ears from the noisy forum of 'genetics,' these are doubtless words which occur most frequently. He very naturally carries away the impression that heredity is mendelism, and mendelism, heredity."[1]

The mendelian theory of inheritance assumes that most, if not all, of the characters of an organism can be resolved into "units," which are as a rule inherited independently of one another. The characteristics of the parents may blend in the bodies of the offspring; but in the germ cells segregation of these characters invariably occurs so that they may become visible again in the next generation. Thus there is no true "blended inheritance." The unit factors of the germ plasma are regarded as not subject to the ordinary phenomena of variability shown by the visible body of the organism. Physical or chemical stimuli may act on the germ plasm and bring about changes which may become permanent in heredity; but the mendelian hypothesis does not admit changes in the germ plasm as the result of influences from the surrounding body of such a nature that the acquirement of the latter may be passed on to succeeding generations.

It will be noted from this hasty generalization that the mendelian theory has no place for the inheritance of acquired characters, that long controverted belief which agitated the physicians of a few decades ago. To the mendelian convert the inheritance of acquired characters is an impossibility. It violates the traditions of the "continuity of the germ plasm" for which Weismann was responsible. Sumner,[1] however, has directed attention to recent experiments by the American zoologist Guyer, which seem to give a better standing to some of the unaccepted manifestations of inheritance. Guyer demonstrated the production of specific antibodies in the blood of the domestic fowl, following the injection of an extract of the lens of the eye of *Peromyscus,* the ordinary field mouse. When blood serum from such a fowl was injected into the abdominal cavity of a pregnant female field mouse, the young were born either with partially liquefied or partially opaque lenses.

This is a remarkable phenomenon, and the progress of Guyer's investigations will be watched with great interest by all students of heredity. He has already extended them, with comparable results. If antibodies of the sort just described prove to be capable of affecting the germ cells in such specific ways, we shall have a mechanism, as Sumner expresses it, analogous to that by which the transmission of somatic modifications may be conceived to occur. Perhaps, then, the question of the inheritance of acquired characters is not entirely a dead issue, after all, even if it cannot be upheld in the precise formulation of the days when one freely discussed the distinction between congenital and acquired characters with which the physician was often expected to deal.

---

[1] Sumner, F. B.: Modern Conceptions of Heredity and Genetic Studies at the Scripps Institution, Bull. Scripps Inst., 1917, No. 3.

THE CONTROL OF MENINGITIS IN ARMY CAMPS

Early in 1917, according to Thomsen and Wulff,[1] a number of cases of meningitis occurred in the Copenhagen district which differed from the classic type of epidemic meningitis in that the disease was severe, causing forty-one deaths out of forty-two patients. The exanthem was constant and pronounced. Twenty-six of the patients were soldiers or sailors, and direct connection with the military could be traced in all but eight of the civilian cases. All of the factors indicated a meningococcus sepsis rather than the ordinary cerebrospinal type of meningitis. The authors conclude that in the majority of cases meningitis must be regarded as a metastatic complication of a primary infection in the blood, that the meningococci vary in virulence at different periods, that the virulence is enhanced by repeated passage from one nasopharynx to another, and that the greatest number and severity of cases occur during the cold seasons when people are housed most closely and are subject to catarrhal affections, coughs and colds.

The views of these Danish investigators are especially interesting in the light of certain reports on meningitis recently published in this country relating to the occurrence of the disease among our soldiers and sailors. We refer particularly to the papers by

---

[1] Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, Hospitalstidende, 1917, 60, 1192; abstr., The Journal A. M. A., Feb. 16, 1918, p. 498.

Herrick[2] and Medlar[3] from two Army camps, and a discussion by Surgeon Mink[4] on meningitis as it occurred in the Great Lakes Naval Training Station near Chicago. In the epidemic described by Herrick in which 140 cases were observed, he found that the disease was not primarily a meningitis but a meningococcus sepsis, marked particularly by the exanthem and a severe general reaction. In the epidemic described by the Danish investigators, as well as in that described by Herrick, the spinal fluid was clear and limpid with a normal cell count. While it was inevitably found sterile in the cases reported from Copenhagen, thorough centrifugation and repeated examinations usually revealed meningococci in the Camp Jackson cases. Medlar's experience was similar to that of Herrick, and also confirms the work of the Danish investigators to the effect that an epidemic of sore throat was synchronous with an increase in the number of carriers of meningitis and with the number of meningitis cases. In the months of November and December, from 3 to 6 per cent. of carriers were found at Camp McClellan, and during the month of January, with the coming of more severe weather and an increase in the cases of "colds" and sore throat, the number of carriers rose from 12 to 20 per cent.

The results reported by the investigators mentioned are particularly interesting in connection with the suggestion of Surgeon Mink that to combat meningitis by the removal and segregation of all carriers is not practicable. Mink regards meningitis, as it occurs in Army and Navy camps and barracks, as essentially a disease of the young recruit, directly dependent on the transfer of the individual from a sheltered life to the exposed and strenuous life of the soldier or sailor. At the Great Lakes Naval Training Station, in which he made his observations, the first case of meningitis in the Second Regiment appeared four days following a regimental outbreak of coughs and "colds" in which practically the entire regiment was crippled by bronchitis, coryza or influenza. With the subsiding of this epidemic of coughs, the meningitis began to subside. During the epidemic of meningitis at the Great Lakes Naval Training Station, he relates, it was found that in some barracks which contained 8 or 9 per cent. of carriers, meningitis developed quite extensively, whereas in other barracks which contained 25 or 30 per cent. of carriers, no meningitis developed. In the instances in which a large percentage of carriers were found, the carriers were removed; in other instances the carriers were left in the barracks. New cases failed to develop in both instances. The final conclusions of Mink are, that meningitis in epidemic form among sailors is primarily dependent, not on the presence of carriers among them, but rather on (*a*) exposure to severe weather conditions (*b*) the spread of "colds," pharyngitis and influenza, and (*c*) crowding in barracks. The spread of the disease therefore is to be checked by prophylaxis against these factors rather than by the detection and segregation of carriers. He believes that an unusual amount of attention is given to meningitis because it is regarded as serious and dangerous, not because it affects a large number of men. Even in the most severe epidemics among recruits, a relatively small number develop the disease. "In an army of 25,000," he says, "to fight a disease that affects only a small proportion and kills or disables a still smaller proportion by segregating all carriers, is uneconomical and against military efficiency."

To summarize: it appears that meningitis, as it has occurred in the Army camps or Navy barracks mentioned, was conspicuously related to the spread of the common diseases of the respiratory tract which, in turn, is directly related to the crowding of men in barracks and exposure to the elements. At the same time it must be recognized that the incidence of the disease was to some extent dependent on the presence of carriers among the men. As a certain number of carriers appears always to be present, the contention of Surgeon Mink that epidemic meningitis should be controlled without relation to the presence of carriers is worthy of consideration. Is it possible that the military situation is such as to interfere with the control of meningitis by absolute and thorough control of carriers?

THE VASOMOTOR MECHANISM IN SHOCK

In the light of the rapidly accumulating data on the manifestations of shock, the diversity of experimental conditions in which shock can be produced, and the seemingly unrelated phenomena that have been observed in connection with shock, it would be little short of editorial rashness to venture even a tentative conclusion as to the real underlying etiologic factors. The problems of shock are at present being investigated by the Committee on Physiology of the National Research Council in this country, and by a special committee on shock and allied conditions, working in England. Some of the preliminary results have already been reported in THE JOURNAL.[1] Probably the more refined analysis of the conditions, so familiar to the surgeon, in which a patient develops alarming symptoms during or soon after an operation will ultimately necessitate a more discriminate use of the term

---

[2] Herrick, W. W.: Epidemic of Meningitis at Camp Jackson, THE JOURNAL A. M. A., Jan. 26, 1918, p. 227.

[3] Medlar, E. M.: Epidemic Cerebrospinal Meningitis at Camp McClellan, THE JOURNAL A. M. A., Feb. 16, 1918, p. 458.

[4] Mink, O. J.: Points in the Epidemiology of Meningitis; abstr., THE JOURNAL A. M. A., Feb. 23, 1916, p. 463.

[1] Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observations on Surgical Shock, THE JOURNAL A. M. A., Sept. 22, 1917, p. 965. Guthrie, C. C.: Experimental Shock, THE JOURNAL A. M. A., Oct. 27, 1917, p. 1394. Erlanger, Joseph; Gesell, Robert; Gasser, H. S., and Elliott, B. L.: An Experimental Study of Surgical Shock, ibid., Dec. 22, 1917, p. 2089.

"shock"; perhaps it will permit the reference of a few common manifestations, such as the low arterial blood pressure, to a diversity of causal agencies.

Meanwhile every effort must be made to preserve an "open mind" in the consideration of a topic of such profound importance as surgical or traumatic shock. However attractively any single and seemingly lucid interpretation may be presented, the clinician must be warned against the pitfalls of restricted vision and undue enthusiasm. Fat embolism cannot account for all of the cases; acidosis may as well be an accompaniment as the instigating agent in shock; the retention of the blood in the splanchnic area will not explain away the mysteries of many manifestations; perhaps we may still say that shock includes something of these features, and something more.

Warnings against the overready acceptance of any "theory" of shock are timely, because an urgent situation always predisposes the clinician to grasp at the most available resource to combat his difficulties; and so long as the uncritical mind is concentrating its interests and directing its efforts in a predetermined channel, it is liable to overlook any except the most immediate possibilities of relief that are presented. Thus far neither saline infusions nor epinephrin administration nor various other once indicated devices for combating some evident manifestation of shock have succeeded, by themselves, in bringing a permanent relief in the majority of the cases tested. The mechanism of the blood depletion that seems to occur in shock and the location of the displaced blood remain to be disclosed.

An illustration of the unwisdom of drawing final conclusions respecting the conditions attending shock has been afforded by the experimental studies of the staff of the Department of Physiology at the Washington University Medical School at St. Louis.[2] Earlier in the debate as to the causes of shock, much stress was placed on the probability of a fatigue of the vasomotor center, with a consequent failure of the circulation to respond in the normally effective manner when blood pressure for some reason was lowered. Subsequently it seemed to be demonstrated by Porter and others that the vasomotor center cannot be fatigued by excessive stimulation, and that accordingly a failure to maintain pressure is not attributable to this factor of the circulation complex. Such conclusions, to which we have repeatedly subscribed, tended to shift attention to peripheral factors in shock. The St. Louis physiologists are frank in the statement, however, that the tone of the vasomotor center falls below normal, very shortly after shock develops, as a result either of fatigue or of deficient blood supply to the center, both consequent, they believe, on the low blood pressure. They admit that failure of the vasomotor center is surely not the main cause of shock; but they contend that a center which holds the vessels merely to their normal caliber at a time when arterial pressure is subnormal is not in normal condition. A normal center, they add, would under such circumstances hold the arteries to less than their normal size. There is evidence also that in shock the respiratory center is sluggish, and is "working very close to the limit of viability."

Erlanger and his colleagues[2] venture the belief that laboratory shock is not very different from shock as seen in war surgery. Having issued a warning against the dangers of overhasty theorizing, we feel free to quote the latest hypothesis of these American investigators. They suggest that the causative factor of shock may be a reduced circulation — to which many of the phenomena point[3]— brought about possibly through the action of pain stimuli, and of a certain amount of hemorrhage, on the vasoconstrictor mechanism.

INCREASED RANK AND AUTHORITY FOR MEDICAL OFFICERS

The time has come to make a final effort to impress on Congress the importance of an early and favorable consideration of the Owen and Dyer bills. It is not necessary to recapitulate the fundamental arguments that call for congressional approval of this legislation. However, we must here emphasize that the success of this measure is desired primarily in the interest of the sanitary and health conditions of the Army.

The sanitary service of troops is not an imposition or a necessary evil, as Colonel Ford[4] has pointed out in the introduction to his work on military hygiene and sanitation, but an effort to assist the commander in preserving the health, and thus the number and morale of his troops. It is an essential and integral part of the military organization. If the sanitary service is to operate to its full efficiency, its advice must be consulted and its orders must be obeyed. "Discipline is essential for the proper enforcement of orders affecting health," says Colonel Ford. "The sanitary adviser can do nothing if his recommendations are not enforced by the commanding officer. Under similar circumstances the morbidity of those commands whose discipline is lax, is invariably higher than is that of those whose discipline is strict. . . . In the last analysis, however, responsibility for the health of the command rests upon its commanding officer."

Although it is true that the health of the troops under the administration of our Army today is an indication of the judgment and experience of the commanding officer, the fact remains that if epidemics arise, if there occurs an increased morbidity and mortality among the troops, if anything even remotely affecting the good health of the troops receives publicity, the Medical Department is called to account. The public does not criticize the commanding general or the War Department as a whole: it is the Medical Department which receives the blame and which must appear before the bar of public opinion to justify its work and its ability. Every one knows that the primary purpose of the Army is military efficiency, and that important as are hygiene and sanitation, they must sometimes be ignored. As Ford says, "Military exigencies must dominate before an engagement, during it and perhaps after it." But when troops are in camp undergoing training over long periods of time, as are our troops at present, the medical and sanitary officer should not be in the position of a mere adviser of little rank whose recommendations may be considered by a line officer as the latter's judgment or disposition may indicate. The medical officer should be given rank sufficient to command the wholesome respect and consideration of line officers, and with this rank should be authority to enforce an important order without bias against his future Army life.

---

[2] Erlanger, Gesell, Gasser and Elliott (Footnote 1).

[3] Mann, F. C.: Bull. Johns Hopkins Hosp., 1914, 25, 205.

[4] Ford, J. H., Colonel M. C., U. S. Army: Elements of Field Hygiene and Sanitation, Philadelphia, P. Blakiston's Son & Co., 1917.

Current Comment

WAR EDEMA

A Norwegian medical journal[1] gives abstracts of certain articles in German medical weeklies,[2] in which is again described a disease concerning which very little is known outside of Germany. The German articles are said not to give any definite indications as to how extensive the disease has been, but there seems to have been no lack of material. The condition was observed first in prison camps; later it appeared in the civilian population, as a rule in the form of outbreaks like an epidemic. Heavy laborers, especially men over 40, were attacked mostly, presumably because most of the young men were away and lived under different conditions. As the name indicates, the outstanding feature is edema, which as a rule develops rapidly, often after exertion, and sometimes assumes very large proportions. The edema is said to involve principally the lower extremities, less often the upper, the face, and the serous cavities. Often there is pain in the affected extremities. This condition may last for months with remissions and intermissions unless permanent relief is secured by change of diet and rest. Rest in bed and change of diet so that at least 100 gm. of fat are eaten each day result in the prompt disappearance of the edema; there is then marked diuresis, and the patient may seem to dry up, becoming as thin as a skeleton, the muscles in the parts that were edematous having shrunken greatly. There is, of course, great weakness in connection with the edema. The urine is normal except for increase in acetone, ammonia, amino acids, uric acid and creatinin. The blood is watery and shows evidence of extensive breaking down of proteins. Provided change of diet in the direction indicated and rest can be obtained, the prognosis seems to be good. Apparently all the writers believe that the cause of this to us unfamiliar morbid picture must be sought in the diet; excess of carbohydrates and deficiency of fats, together with large amounts of water, as the food may be mostly in the form of soups, appear to be regarded as the most important factors. In an article,[3] published nearly two years ago, on "edema disease," Jürgens rejected the idea held at first that this edema was of infectious origin, and ascribed it exclusively to dietetic deficiencies. A similar war deficiency edema has been described by Landa[4] as having been prevalent in and around the City of Mexico in 1915. It lies near at hand to speculate as to what some of the essential ultimate factors may be (deficiency of fat-soluble vitamins?); but we have not enough detailed information to form reliable foundations for speculative superstructures.

SAVING DAYLIGHT

The suggestion that the clock be advanced one hour, or even two hours, during the summer months was made some time prior to the great war, but no action was taken in any country. This is not to be wondered at, as the chief beneficiaries of the plan would be the unorganized public. Since the war has put a premium on the efficiency of the masses and has also put a premium on oil and coal and the power derived from these products, most of the European nations have adopted the plan of advancing the clock one hour. A bill looking toward the same result was introduced at Washington last year, and was passed by the Senate in June. It still awaits action in the House; this, too, in spite of the vivid lesson we have had during the past few weeks on the need of conserving coal. The daylight saving plan has, from a health standpoint, everything in its favor and nothing against it.

LEGISLATION FOR COMMUTATION OF QUARTERS FOR COMMISSIONED OFFICERS IN THE FIELD

For some time an effort has been made to obtain for officers on field duty with troops the commutation for quarters, light and heat that is now given to officers stationed where public quarters are not available. A bill has been introduced into the House of Representatives and into the Senate to procure this commutation for officers with dependents while on duty with troops. The bill was referred to the Military Committee and promptly returned to the Senate with a favorable report consisting of an explanation by the Secretary of War of the necessity for immediate action. The bill provides that quarters and commutation thereof to all commissioned officers of the Army on duty in the field, or on actual duty outside the United States, who maintain a residence for wife,

---

1. Norsk Mag. f. Lægevidensk., 1918, **79**, 117.
2. Maase and Zondek: Berl. klin. Wchnschr., 1917, No. 36; Deutsch. med. Wchnschr., 1917, No. 16. Knack and Neumann: *Ibid.*, 1917, No. 29.
3. Jurgens: Berl. klin. Wchnschr., 1916, **53**, No. 9; abstr., The Journal, April 15, 1916, p. 1278.
4. Landa: Gac. méd., Mexico, 1917, **11**, 67; abstr., The Journal A. M. A., Feb. 9, 1918, p. 424.

child or dependent parent, shall be furnished at the place where the residence is maintained, without regard to personal quarters furnished to the officers elsewhere. The number of rooms prescribed in the act of March 2, 1917, is to govern, and in case quarters are not available, every commissioned officer is to be paid commutation thereof at the rate authorized by law in cases in which public quarters are not available. The Secretary of War calls attention to the fact that officers serving with troops are actually undergoing privation incident to personal service, particularly abroad. The matter has been considered especially by the *Defense Bulletin*, published by the Army League of the United States, and by the *Infantry Journal*, which presents the following table:

Table showing the difference in average monthly pay (including commutation of quarters, heat, and light) of officers on duty at Washington and others of like grade on duty with troops at Camp Meade, a few miles distant.

Grade	*Monthly Pay at Washington*	*Monthly Pay at Camp Meade*	Monthly Premium for Privilege of Serving with Troops	Percentage of Reduction in Pay for Service with Troops
Second Lieutenant	$173.66	$141.67	$ 31.99	18
First Lieutenant	212.79	166.67	46.12	22
Captain	259.74	200.00	59.74	23
Major	323.27	250.00	73.27	23
Lieut.-Colonel	378.83	291.67	87.16	24
Colonel	444.14	333.33	110.81	25

This is a problem which affects every medical officer, and certainly justice demands that the bill receive favorable consideration.

PETITION CONGRESS

No arguments should be necessary to convince civilian physicians of the necessity for the success of some such legislation as that provided by the Owen and Dyer bills for increased rank and authority of medical officers. It should be remembered, however, that Congress, which usually is busy in time of peace, is even more pressed with work in time of war, and however anxious the individual congressman and senator may be to inform himself completely on each measure before casting a vote, the demands on his time are such that frequently this is impossible. There has arisen, therefore, the method of influencing Congress by a direct appeal from the citizens of the country to their representatives. In view of this fact, the American Medical Association last week sent to every county society in the country an appeal to take up this matter individually and collectively, and to petition the senators representing their state and the congressman representing their county to support this measure. An organized appeal of this character, backed by the request of the physicians of the country and supported in turn by the citizens with whom physicians may have influence, will cause Congress to give these appeals the special consideration which they merit.

Educate the Mothers.—Efforts directed toward the prevention of infant mortality show more apparent results than any other form of infant or child welfare work. In practically every instance in which a community has undertaken to save the lives of its babies it has been successful. The chief means has been the education of the mother. Wherever that has been successfully accomplished the infant death rate has fallen.—C. V. Chapin, M.D.

Medical Mobilization and the War

Wounded in Action

Lieut. Thomas M. Holmes, M. R. C., Delmar, N. Y., is reported to have been slightly wounded in action, February 2.

New Assistant Surgeon-General in Public Health Service

Surg. A. J. McLaughlin has been detailed to Washington as Assistant Surgeon-General of the Public Health Service in charge of the Division of Domestic (Interstate) Quarantine, beginning March 1. He takes the position vacated by Asst. Surg.-Gen. W. C. Rucker, who has been assigned to duty abroad.

Base Hospital Mobilized

Base Hospital No. 11, Chicago, representing the St. Joseph's, St. Mary's and Augustana hospitals, has been ordered to active duty, and Lieut. Robert E. Flannery, M. R. C., has been directed to mobilize the enlisted personnel and to proceed to Camp Dodge, Des Moines, Iowa, and to report to the commanding general of that camp for duty.

Health Service to Fight Malaria at Camps

In order to prevent malaria among the soldiers in the South during the coming spring and summer, the United States Public Health Service plans to employ every known effective method of eradicating the disease in a zone from 1 to 2 miles around twenty or more of the camps, while in the camps themselves the Army authorities will control the disease. At each camp menaced by this disease a sanitary engineer, supervised by Public Health Service malaria experts, will be in charge of malaria operations. The methods to be employed to destroy the *Anopheles* mosquito are similar to those used in eradicating the yellow-fever mosquito in the Canal Zone during the construction of the Panama Canal. By this survey the proper zone for malaria work, the amount of malaria occurring in the previous year, the breeding and hiding places of malaria mosquitoes, and the best methods of prevention in each zone will be determined.

Hospital News

Ten hotels at Vichy, France, have been placed at the disposal of the American forces. Five hospitals are to be installed in the hotel, with accommodations for 7,000 patients.

It is announced that a United States Army depot is to be established at Ellis Island, New York Harbor. This will later be used as a receiving hospital for German prisoners and sick and wounded American soldiers returned from France.

The Hotel Cape May, Cape May, N. J., has been leased by the government for use as a hospital at the rental of $99,000. The building has 600 rooms.

The American Field Hospital at a western front was apparently used as a target in a German air raid, February 16. Fortunately, none of the patients, nurses, officers or men were injured.

New Ocean House at Swampscott, Mass., with the annex and several cottages has been taken over by the government and will be converted into a reconstruction hospital. The buildings at present accommodate more than 500 patients.

Hospitals for the Wounded Returned from France

The Army medical authorities, basing their opinion on figures from Canada and England, believe it will be necessary to provide hospitals in the United States with from 5 to 10 per cent. bed capacity for the troops serving abroad.. A clearing hospital of 1,500 beds on Staten Island has been authorized and is now in process of construction. It is planned also to establish special hospitals, general hospitals and convalescent hospitals and camps. The following special hospitals have been proposed: the clearing hospital on Staten Island, three or four tuberculosis hospitals—one at Otisville, N. Y., is now under construction, the regular Army tuberculosis hospital at Fort Bayard, N. M., is being enlarged and ground has been leased at Asheville, N. C., for the erection of a tuberculosis hospital. A site has been selected for a hospital in Colorado, and the leasing of a tuberculosis hospital in Connecticut is under consideration. The hospital at Hot Springs, Ark., is being enlarged and hospitals in Baltimore will be used for blind and deaf patients. A hospital is being erected at Fort Porter, N. Y., for mental cases. A war neurosis and an epileptic hospital will also probably be necessary. The authorities are considering three methods to provide these hospitals: construction, leasing buildings and converting Army posts.

Extracantonment Health Zone Regulations

In carrying out the cooperative plan of the United States Public Health Service, the Medical Corps of the U. S. Army and state and local health authorities in extracantonment zones for protecting the health of the troops in camps and of the inhabitants of such zones, new regulations have been adopted in a number of zones (*Public Health Reports*, Feb. 15, 1918). Among these are rules adopted Jan. 11, 1918, by the health board of Des Moines, in the zone of Camp Dodge, for the control of venereal diseases. Regulations were also prescribed in regard to communicable diseases, and the city health officer was relieved by ordinance of all other duties, and a number of new officers, inspectors, clerks and visiting nurses provided to assist in carrying out the regulations. At Richmond, Va., in the zone of Camp Lee by regulation of the health department of Jan. 16, 1918, druggists and other retailers of drugs and remedies advertised to relieve persons suffering from contagious diseases are required to procure receipts from such purchasers, with name and address. The dealers are required to report to the health department monthly. Another regulation controls the handling of live poultry and other food products, and still another gives a revised list of reportable communicable diseases, with a special list of diseases which are to be reported as soon as their presence is suspected. The U. S. Public Health Service in cooperation with the commanding officer of the United States troops at Fort Oglethorpe, Ga., has issued regulations for the extracantonment zone covering barber shops, billiard halls, manicuring parlors, hotels, restaurants and eating houses.

Rehabilitating the Soldier After the War

In Canada, under an order-in-council, power has been given to the Military Hospitals Commission to train for new occupations returned soldiers who have been disabled in such a way that they cannot engage in their former occupations. *Reconstruction*, a bulletin published by the Military Hospitals Commission for the information of all interested in the welfare of Canada's returned soldiers, in the January number sets forth the plan under which the soldiers are handled and describes trade and other schools and factories already at work reeducating the maimed soldiers to become self-supporting. Under the procedure established a standing order exists that every returned soldier must be interviewed by the vocational officer of the M. H. C. C. unit to which he is attached and a complete survey made of his capabilities from the industrial standpoint. If the soldier needs assistance he is interviewed by a vocational counsellor and a medical officer whose duty it is to consider the line of industry for which his aptitudes, previous training and remaining abilities qualify him. Their report goes to the Disabled Soldiers' Training Board, the members of which are acquainted with local industrial conditions, and after an interview with the soldier they select the course of training. Soldiers undergoing training receive a pay check from the government for the support of themselves and their families. In November, 1917, the number of men attending the vocational training classes was 3,356, 1,201 of whom were so disabled that they could not follow their former occupations. It has been found that about 10 per cent. of men passing through the Canadian convalescent hospitals require reeducation. In addition to this class is the class of convalescents who are given occupational treatment to loosen up their muscles and keep their minds occupied, as well as giving them an opportunity to improve their educational qualifications and their earning capacity. In this class no effort is made to teach new occupations. In preparing the disabled for new occupations everything is utilized from agriculture to handloom operation. For occupational purposes, commercial subjects and general education, carpentry, metal working, gardening and automobile mechanics are standard subjects. Tuberculous patients and those confined to bed, fancy work and embroidery, basketry and weaving provide occupation. For the limited number permanently incapacitated from active exertion some of the art hand crafts such as basket making, clay modeling and handloom operation have been employed with success.

NEWS OF THE CANTONMENTS

Thirty-Third Division, Camp Logan, Houston, Texas

Feb. 16, 1918.

LABORATORY SERVICE

The laboratory staff is at present working according to the following schedule, and the work divided as far as practicable in the way indicated.

Chief, First Lieut. Murray C. Stone, M. R. C., instructor—pathology.

Bacteriology, First Lieut. John C. Simpson, M. R. C. Spinal fluids, blood cultures, throat cultures, exudates, pneumococcus types, typhoid release, vaccines, Wassermanns.

Clinical Pathology, First Lieut. Louis D. Minsk, M. R. C. Urine, feces, stomach contents, blood counts, malaria, sputum, gonococcus, spirochaeta

Public Health, First Lieut. Edwin Schultz, M. R. C. Water and milk supplies, typhoid carriers, meningococcus carriers, diphtheria carriers, Schick test, parasites.

On account of the freedom of the camp from epidemic disease of any serious magnitude, the work of the laboratory up to the present time has been largely routine in character; that is, such as would obtain in a large civil hospital.

The public health work so far has included the routine examination of water and milk supplies, and a comparatively limited number of examinations for carriers of various kinds.

The laboratory occupies at present 480 square feet of floor space, which in the near future will be more than doubled. An incubation room has been built which will allow of the incubation at one time of several thousand cultures. The officers in the laboratory are thoroughly acquainted with the various methods now employed in the detection of carriers, and in pneumococcus type differentiation, and with the administration of sera, so that in the face of a serious epidemic the entire force would at once be available for the necessary laboratory work.

PNEUMONIA

As it has been impossible to obtain white mice, the determination of pneumococcus types has been according to the method described in The Journal of the American Medical Association, Jan. 5, 1918, by O. T. Avery, M.D., of the Rockefeller Institute, New York. Those cases that give an organism, which forms a precipitate in Type 1 serum, are treated intravenously by doses of about 90 c.c. of Type 1 antipneumococcic serum to which an equal amount of normal saline solution has been added and the fluid allowed to run slowly into a vein at the elbow so that it takes about one-half hour for the total amount to be administered. In our cases we have noticed a slight rise of temperature during the first three or four hours after treatment, and then usually a sudden drop to normal with a coincident clearing up of symptoms. Those cases whose temperatures are still above 102 F. at the end of twelve hours, are treated again and repeated in twenty-four hours if the temperature still remains above 102. As this amount of foreign serum at times produces symptoms of anaphylactic shock all patients are desensitized two or three hours before the treatment by the hypodermic administration of 0.5 c.c. of the serum. By us this is done to each patient, while the sputum is being worked up, and when we find a Type 1 infection, the patient is already desensitized.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Feb. 18, 1918.

SCARLET FEVER AND MUMPS

The most rigid quarantine enforced yet at Camp Zachary Taylor was placed on the Forty-Sixth Infantry, Regular Army, February 12. The order placed a quarantine around the entire regiment for more than seven days, and included all officers and enlisted men. No one but those carrying supplies were allowed to enter or leave the camp. The quarantine was the result of the breaking out of seven cases of scarlet fever in seven companies, and the discovery of at least twenty-five suspected cases.

Scarlet fever has also been discovered in the Three Hundred and Twenty-Sixth Field Artillery. Experts of the medical department were sent to certain milk dealers to investigate their milk supplies in an effort to find the source of the disease.

Mumps is affecting nearly 300 soldiers, the "mump colony" being located in the One Hundred and Fifty-Ninth Depot Brigade, where two barracks buildings are fitted up. As the cases develop, the men are sent there instead of to the base hospital.

Measles has abated materially, there being but few new cases. One hundred and twenty-eight pneumonia patients were under treatment at the base hospital on the 13th, but only a few were serious.

The first death of a colored soldier occurred on the 13th from cerebrospinal meningitis.

EAR TROUBLES

Otitis media has made its appearance in an acute form at the camp, and a half dozen medical officers and several Red Cross nurses have suffered with it. First Lieut. L. A. Mayer, Capt. Milton J. Lichty and First Lieuts. Hugh L. McLean, Earl Moorman and Carl Harris have been affected. The otological department of the hospital was very busy during the past week.

SANITARY TRAIN DOWNCAST

Gloom struck the sanitary train last week when an order came through stating that unless specially ordered, the sanitary trains of a division will not move with the full organization. The order is believed to mean that Lieut.-Col. John H. Allen, commanding officer of the Three Hundred and Ninth Sanitary Train, and many other officers of the sanitary train will remain in Louisville.

CAPTAIN LICHTY'S DEATH

Gloom has prevailed at the base hospital over the death of Capt. Milton J. Lichty, M. R. C., of Cleveland, the first officer to die at the camp. He was universally liked, and his sudden taking created a deep impression. As chairman of the tuberculosis examining board he did faithful, efficient and painstaking work. He was at work early and late. The night before his death he dictated ten official letters, although in the officers' ward with otitis media. Like so many others in the camp, he had been infected with the *Streptococcus hemolyticus* and had had a severe cough and was much below par. The pneumococcic meningitis was very virulent, as he died twenty hours after the onset of the first general symptoms. His brother, Dr. J. A. Lichty of Pittsburgh, and his wife arrived after his death. All flags were at half mast in the camp, and a military escort left on the 15th for Cleveland with his remains, where he was buried.

BASE HOSPITAL ENLARGMENT

Considerable correspondence has passed between the military authorities at the cantonment and the War Department in regard to the needs of the base hospital, and there will be an increase of 700 beds with additional buildings for medical officers and enlisted men. The nurses' building has been finished. Lieut.-Col. Will Pyles has been notified that the nurses' quota will be increased from sixty-five, the original number, to 135.

PERSONAL

First Lieut. John B. Webster has been appointed orthopedic surgeon at the base hospital.——Chaplain John A. Ellis has been relieved from duty with the Three Hundred and Thirty-Sixth Infantry and assigned to the base hospital.——Capt. Marvin S. Veal of the base hospital has been ordered to proceed to his home, and on arrival there to revert to inactive duty status.——Major Julius McHenry, in charge of the surgical department at the base hospital, has returned to camp after a two months' course of instruction at the Roosevelt Hospital, New York, and resumed his official duties.——First Lieuts. Augustus B. Riley and George Hyenowine of the Three Hundred and Thirty-Sixth Infantry have been detailed students at the School of Hygiene and Sanitation.

Feb. 25, 1918.

Seventy-eight patients were received at the base hospital February 21, during the forenoon, the largest number for any half day on record. Most of the men were suffering from tonsillitis, grippe and coughs from laryngitis and bronchitis. No deaths were recorded during that twenty-four hour period.

COURT MARTIAL MEDICAL OFFICERS

Acting on the complaint of Representative Robert Y. Thomas, the War Department has issued instructions convening a court martial to try Lieut.-Col. John H. Allen, M. C., and Major Milton Board, M. R. C., Camp Zachary Taylor. The court martial is the result of allegations regarding the death of Otho Murray of Cumberland County, Ky., a selective draft man at Camp Zachary Taylor, who following measles, had acute ascending paralysis. He was allowed to be taken from the hospital and sent home, dying at Glasgow, Ky., before he reached his home.

PERSONALS

Lieut.-Col. John H. Allen has received an order from Washington, relieving him from duties as division surgeon and naming him as camp surgeon. Major Luther Poust, who has been chief sanitary officer has been detailed as acting division surgeon.——Lieut.-Col. Wallace De Witt, division surgeon of the Eighty-Third Division at Camp Sherman, spent a few days at Camp Zachary Taylor, conferring with Col. J. H. Allen and Major Luther R. Poust, regarding health conditions.——Colonel Donaldson and Major Sweet of the inspector general's office spent several days at Camp Zachary Taylor inspecting every department of the cantonment.——Major-Gen. Harry C. Hale, his chief of staff, Lieut.-Col. Lawrence Halstead and his aide Capt. Oscar Griswold, who have been to France returned to Louisville last week.——Capt. Bert E. Scott has arrived and reported to the Base Hospital.——Lieut. Lawrence H. Mayers has been ordered to Chicago to join Base Hospital Unit No. 14, as adjutant. Lieutenant Mayers has been assistant chief to the medical service at Camp Taylor since last October.

Eighty-Eighth Division, Camp Dodge, Des Moines, Iowa

Feb. 18, 1918.

BASE HOSPITAL NOTES

Our first hospital unit of 500 beds proved to be insufficient to care for the sick of this cantonment. In the latter part of December, therefore, the venereal patients and some of the patients with contagious diseases were moved into two large and two small barracks. These barracks have since been remodeled to meet most requirements. At present there is under construction another 500 bed unit, which will be ready for occupancy in about three weeks. The base hospital has received almost all of the sick of this command, which caused for a short time a little crowding in the general medical wards. On completion of the new hospital unit, we shall have accommodations for the sick of a division of 42,000 men.

The total number admitted to hospital to date has been 7,214 cases, with an average of 10.5 hospital cases to date. The average number of patients per day for November was 427, for December, 700, and for January, 975. Since the beginning of the camp, there have been forty-four deaths, or an annual death rate of 603 per hundred thousand.

The commanding officer of the hospital is Major A. T. Cooper, M. C., U. S. Army. The chief of the medical service is Major Joseph Miller, M. R. C. The chief of the section of surgery of the head is Major Frank Todd, M. R. C. The surgical service is temporarily in charge of Capt. C. G. Fraining. The laboratory is under the direction of Capt. Daniel Glomset and the roentgen-ray department under that of Capt. William G. Alexander, M. R. C.

The medical service has averaged 300 beds for general cases and about 600 beds for contagious cases. Arthritics and patients with bronchopulmonary diseases have formed the great bulk of the general medical cases, there having been but few gastro-intestinal cases, and no patients with a dystrophic or metabolic disease. During December and January, 100 soldiers with pulmonary tuberculosis were recommended for discharge, or one out of four of those given a special four to six day examination.

From the beginning of the cantonment to Feb. 1, 1918, this department has cared for the following number of cases of the communicable diseases: pneumonia, 168 (mortality, 15 per cent.); meningococcus meningitis, 14 (mortality, 36 per cent.); diphtheria, 30 (1 death); and the following cases without mortality: typhoid, 2; smallpox, 16; chickenpox, 6; measles, 595; scarlet fever, 65, and mumps, 850.

The laboratory has made 20,250 examinations, of which 1,205 were Wassermann reactions, 30 milk examinations, 955 cultures for typhoid, 2,543 cultures for the meningococcus, 621 examinations for intestinal parasites, 53 determinations of pneumococcus types, and 3,905 cultures for diphtheria bacilli.

The roentgen-ray department has made 2,800 examinations, of which 510 were for tuberculosis. Pneumonia patients have been roentgenographed as routine at five day periods until convalescent.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending

Feb. 15, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (*disease only*):

All Troops	1611.6
National Guard Camps	1424.9
National Army Camps	1901.8
Regular Army	1351.5

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	51.1
National Guard Camps	43.1
National Army Camps	59.1
Regular Army	41.8

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Wheeler, Doniphan, Kearny and Shelby. NATIONAL ARMY: Camps Travis, Pike, Funston, Sherman, Jackson, Zachary Taylor and Dodge. REGULAR ARMY: Central Department.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Beauregard, Wheeler, Shelby, Kearny and Doniphan. NATIONAL ARMY: Camps Funston (Eighty-Ninth), Pike, Travis, Funston (Ninety-Second), Jackson, Zachary Taylor, Dodge, Sherman and Lee. REGULAR ARMY: Southeastern and Central Departments.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

National Guard Camps	*67.4*
National Army Camps	67.8
Regular Army	69.2

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Logan, Bowie, Beauregard, Wheeler and Sheridan. NATIONAL ARMY: Camps Pike, Zachary Taylor and Lee. REGULAR ARMY: Southern and Eastern Departments.

6. NUMBER OF NEW CASES OF PNEUMONIA REPORTED. 687
Highest number in any one camp (Travis) 76

7. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 15, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective per 1,000
Wadsworth	10	...	...	16	..	..	3	2	..	1	23.4
Hancock	6	...	...	18	..	..	9	4	2	5	52.2
McClellan	9	...	...	19	..	..	21	..	3	1	37.7
Sevier	23	...	...	29	..	..	23	2	17	3	67.7
Wheeler	10	1	...	25	..	..	4	1	..	4	61.9
Logan	23	...	...	117	..	..	35	1	..	3	31.9
Cody	28	...	...	12	..	..	9	3	..	8	45.2
Doniphan	26	...	1	19	..	..	5	..	..	10	41.6
Bowie	48	...	...	85	..	..	9	1	..	6	77.8
Sheridan	3	...	...	4	..	..	1	1	3	2	24.6
Shelby	5	...	...	25	..	..	3	1	1	6	60.9
Beauregard	18	...	...	30	..	..	...	5	..	6	65.9
Kearny	6	...	...	6	..	..	3	1	10	2	35.3
Devens	10	...	...	17	..	..	14	..	2	3	23.1
Upton	7	...	...	21	..	..	3	..	1	3	29.6
Dix	1	...	...	6	..	..	51	1	10	0	46.5
Meade	2	...	...	35	..	..	10	1	5	5	31.7
Lee	24	...	...	50	..	..	46	3	2	6	64.9
Jackson	5	...	...	4	..	..	15	4	..	3	75.8
Gordon	9	...	...	15	..	..	25	4	..	5	37.1
Sherman	4	...	...	23	..	..	41	..	16	5	66.3
Taylor	19	...	...	47	..	..	2	2	17	8	73.0
Custer	2	...	...	11	..	..	15	..	4	5	43.7
Grant	5	...	...	17	..	..	26	1	29	5	41.8
Pike	38	1	1	201	..	..	17	..	5	12	102.8
Dodge	17	...	...	25	..	..	23	3	15	2	68.8
Funston (89th)	3	...	...	16	..	..	8	2	3	4	107.1
Travis	76	2	...	20	..	..	1	2	..	10	101.6
Lewis	7	...	...	37	..	..	24	..	29	0	51.2
Funston (92d)	2	...	...	2	..	..	...	..	..	1	85.5
Regulars	216	3	4	510	..	..	545	27	84	95	41.8
National Guard in Departments	4	...	...	12	..	..	37	1	..	1	32.9
National Army in Departments	11	...	3	40	..	..	53	..	13	2	105.0

8. ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916*	Regulars in U. S., Week Ending Feb. 15, 1918	National Guard, All Camps, Week Ending Feb. 15, 1918	National Army, All Camps, Week Ending Feb. 15, 1918
Pneumonia	2.59	29.3	34.8	23.5
Dysentery	39.7	0.4	0.1	3.8
Malaria	12.52	0.5	0.1	0.1
Venereal	91.23	69.2	67.4	69.8
Paratyphoid	0.31	0.0	0.0	0.0
Typhoid	0.21	0.0	0.0	0.0
Measles	20.28	73.9	19.8	40.9
Meningitis	0.29	3.6	3.2	2.9
Scarlet fever	0.59	11.4	5.6	17.6

* Enlisted men only, both white and colored.

PROMOTIONS

Captains of the Medical Reserve Corps Recommended for Promotion as Majors

Feb. 20, 1918

EDWARD CLARENCE MOORE, Los Angeles; GEORGE WATERS, Memphis, Mich

First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Captains

Feb. 20, 1918

JOHN FRYE CHAPMAN, San Francisco; ROBERT WELLINGTON CLANCY, Midford, Ore.; GARRETT MARCELLUS CLOWE, Schenectady, N. Y.; DOWELL GANN, Jr., Little Rock, Ark.; FLEETWOOD GRUVER, Nashville, Tenn.; CHARLES WILBUR HYDE, Washington, D. C.; CYRUS JACOBSKY, Wilkes-Barre, Pa.; JOHN GREENWOOD JENNINGS, Boston; ROBERT MAXWELL JONES, Culver City, Calif.; THOMAS HENSHAW KELLY, Cincinnati, JOSEPH JAMES KOCYAN, Plains, Pa.; GEORGE VICTOR LITCHFIELD, Abingdon, Va.; THOMAS LITTLEWOOD, Pittsfield, Mass., AUSLEY LYMAN LOWE, Robinson, Ill.; VELPEAU HILL RAGSDALE, Bessemer, Ala.; FRED RANKIN, Baltimore; ABRAM KARL REEVES, East Orange, N. J.

Personnel of the Medical Department

For the week ending February 23, the personnel of the *Medical Department of the Army included:*

MEDICAL CORPS: 768, including 1 major general, 61 colonels, 103 lieutenant colonels, 210 majors, 2 captains and 391 lieutenants.

MEDICAL RESERVE CORPS: 17,052, including 1,011 majors, 3,762 captains and 12,279 lieutenants. On active duty: 13,687, including 844 majors, 3,227 captains and 9,616 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,207, including 7 lieutenant colonels, 259 majors, 147 captains and 794 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 32, including 4 brigadier-generals, 10 colonels, 16 lieutenant colonels and 2 majors.

The DENTAL CORPS, 211; DENTAL RESERVE CORPS, 5,036, of whom 1,297 are on active duty; DENTAL CORPS, NATIONAL GUARD, 266; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,380, of whom 701 are on active duty; VETERINARY CORPS, NATIONAL GUARD, 57; VETERINARY CORPS, NATIONAL ARMY, 288; SANITARY CORPS, 864, and AMBULANCE SERVICE, 136, *constitute the remainder of the commissioned* personnel.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Wheeler, Macon, Ga., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Major-Gen. WILLIAM C. GORGAS.

The following officers are constituted a board for the purpose of reviewing promotions in the Medical Corps of the National Army to the grade of colonel and lieutenant colonel: Brig.-Gen. CHARLES RICHARD, Col. REUBEN B. MILLER and Lieut.-Col. VICTOR C. VAUGHAN.

To Camp Greene, Charlotte, N. C.; *Camp Wadsworth,* Spartanburg, S. C.; *Camp Sevier,* Greenville, S. C.; *Camp Gordon,* Atlanta, Ga.; *Camp Jackson,* Columbia, S. C., *to make special sanitary inspections,* and on completion *to his proper station,* Col. PERCY M. ASHBURN.

To Fort Riley for duty as commanding officer, from Williamsbridge, N. Y., Col. EDWARD R. SCHREINER; from Fort Thomas, Major JAMES A. WILSON. For duty, from Camp Jackson, Major THOMAS J. LEARY.

To Hoboken, N. J., and *Camp Merritt, N. J.,* to make sanitary inspections, and on completion *to his proper station,* Col. DEANE C. HOWARD.

To Lake Charles, La., Gerstner Field, to make sanitary inspection, and on completion *to his proper station,* from Fort Sam Houston, Col. WILLIAM F. LEWIS.

To report to the commanding general, Western Department, for assignment to duty, Col. BENJAMIN J. EDGER, Jr.

To Williamsbridge, N. Y., for duty as commanding officer, from Fort Riley, Col. DOUGLAS P. DUVAL.

To Camp Wheeler, Macon, Ga., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Lieut.-Col. CHARLES L. FURBUSH.

To Fort Oglethorpe, Camp Greenleaf, as commanding officer, from Hoboken, Lieut. Col. CRAIG R. SNYDER; from Douglas, Arizona, Major GEO. H. McLELLAN.

To New York City for duty, and on completion *to his proper station,* Lieut.-Col. LLEWELLYN P. WILLIAMSON. For duty, from St. Louis, Lieut.-Col. MARLBOROUGH C. WYETH. For instruction in orthopedic surgery, from Rochester, New York, Lieut. EGBERT H. WESSON.

To Saranac Inn, Upper Saranac Lake, New York, to make inspection of property and on completion *to return to his proper station,* from Fort Ontario, Lieut.-Col. HENRY D. THOMASON.

To Camp Stuart, Newport News, Va., as division surgeon, from Camp Stuart, Major JULIUS F. LYNCH.

To Fort Leavenworth, Kan., for permanent duty, from Fort Leavenworth, Major FRANK N. CHILTON.

To Newport News, Va., for duty, from Camp McClellan, Major JAMES S. FOX.

To Portland, Ore., Spruce Production Division, for duty, from San Antonio, Major JOHN W. SHERWOOD.

To San Antonio, Texas, Kelly Field, for duty, from Boston, Mass., Major LOUIS H. BAUER.

To Waynesville, N. C., Asheville, N. C., and *Tallapoosa, Ga.*, to inspect property and on completion *to his proper station*, Major EARL H. BRUNS.

To Camp Beauregard, Alexandria, La., for temporary duty, from Camp Lee, Lieut. HENRY K. B. BUFFORD.

To Camp Custer, Battle Creek, Mich., for physical examination to determine his fitnes for active service, Lieut. GEORGE W. KRAHN.

To Camp Devens, Ayer, Mass., for duty, from Rochester, N. Y., Lieut. ALBERT BOWEN.

To Camp Grant, Rockford, Ill., for temporary duty, from Milwaukee, Lieut. NOBEL DuB. McCORMACK.

To Camp Greene, Charlotte, N. C., for duty, from Camp Logan, Lieuts. *JOHN J. CARDEN, HAROLD H. GOLDING* and *FRANK* McA. MOOSE.

To Fort McPherson, Ga., for duty, from New York Orthopedic Hospital, Lieut. JOSEPH R. JONES.

The following officers of the Medical Reserve Corps who have passed the preliminary examination for appointment in the Medical Corps of the National Guard will proceed to the Army Medical School for the required course of instruction: From Camp Meade, Lieut. HARRY A. BISHOP; from Camp Laurel, Lieut. LAWRENCE L. BLACKBURN; from Accotink, Va., Lieut. JAMES A. BUCHANAN; from Fort Thomas, Lieut. TATE B. COLLINS; *from Camp Lewis*, Lieut. ROY M. COX; from Camp Dix, Lieut. HUGH J. DAVIS; from Presidio of San Francisco, Lieut. DAVID A. GREGORY; from Camp Stanley, Lieut. JOSEPH KOPECKY; from Fort McHenry, Lieut. ABRAHAM L. OLSHANSKY; from Camp Sherman, Lieut. ALEXANDER F. ROBERTSON, Jr.; from Camp Stanley, Lieut. HAROLD A. SPILMAN.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Beauregard, Alexandria, La., for duty, Lieut. EUGENE THOMAS, Mobile.

To Camp McClellan for temporary duty, Major JAMES N. BAKER, Montgomery; Lieut. ALVIN E. COWAN, Ensley.

To Fort Oglethorpe for instruction, Lieut. BENJAMIN J. LEWIS, Samson.

To Lake Charles, Gerstner Field, Signal Corps, Aviation School, for duty, Lieuts. MARION T. DAVIDSON, Ensley; TOLL H. SUDDUTH, Garden City.

To New York City Neurological Institute, for instruction, Major WESTLEY E. DRENNEN, Birmingham. *Cornell Medical College* for instruction and on completion *to Hoboken* for temporary duty, from Camp Dodge, Capt. ROBERT D. BROWN, Mobile.

To the inactive list, from duty as medical aid to the governor of Alabama, Major *JAMES N. BAKER, Montgomery*.

To their home and honorably discharged, Lieut. FRANK N. McCONNICO, Montgomery. On account of physical disability existing prior to entrance into the service, Lieut. SOSEA F. DOWNS, Clanton.

California

To Camp Kearny for duty, Lieut. SAMUEL McC. SPROAT, Portola.

To Fort Mason for duty, from New York City, Major ALANSON WEEKS, San Francisco.

To Los Angeles for instruction in orthopedic surgery, from San Francisco, *Capt. EARL N. GREENWOOD*, San Francisco. For instruction, Lieut. WALTER C. S. KEOBIG, Los Angeles. For orthopedic instruction, Lieuts. ARNOLD M. SCHOLZ, CHARLES S. YOUNG, Los Angeles; STUART Z. PEOPLES, Petaluma; JOSEPH W. CRAWFORD, Sacramento; LOUIS M. COY, San *Bernardino; from* Camp Kearny, Lieut. GABRIEL J. J. WISCHI, San Francisco; from Camp Lewis, Lieut. JOHN E. PAULSON, San Quentin. To organize a course of instruction *and act as instructor* in orthopedic surgery, JOHN C. WILSON, Los Angeles.

To report to the Commanding General, Western Department, for assignment to duty, Lieut. JAMES B. OWEN, San Francisco.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Sheridan*, Montgomery, Ala., for temporary duty, Capt. WILLIAM H. WICKETT, Fullerton.

To San Antonio, Texas, Kelly Field for duty, from San Antonio, Major FREDERICK P. GAY, Berkeley.

To his home and honorably discharged on account of his inaptitude for the service, Capt. LEWIS H. YOUNG, San Francisco.

Colorado

To Camp Logan, Houston, Texas., for temporary duty, Capt. OLIVER LYONS, Denver.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Joseph E. Johnston, Capt. PHILIP A. LOOMIS, Colorado Springs.

To Fort Riley for instruction, Lieut. HENRY H. PANTON, Denver.

Connecticut

To Camp Shelby, Hattiesburg, Miss., as Divisional Tuberculosis Specialist from Camp Upton, Lieut. RAYMOND V. QUINLAN, Meriden.

To Camp Stuart, Newport News, Va., for duty, from Fort Oglethorpe, Capt. JOHN S. BLACKMAR, Norwich.

To Fort Oglethorpe for instruction, Lieut. CHARLES J. GREENSTEIN, Meriden.

District of Columbia

To Danville, N. Y., for duty, Capt. CHARLES S. ROBBINS, Washington.

To Fort Oglethorpe as instructor in lung diseases, from Walter Reed General Hospital, Major ROY D. ADAMS, Washington; for *instruction, Lieut. VIRGIL B. WILLIAMS, Washington*.

Florida

To Camp Hancock, Augusta, Ga., Aviation Section Signal Corps, for duty, Lieut. ALBERT C. McKENZIE, Jacksonville.

To Fort Oglethorpe for instruction from Camp Jackson, Capt. JOHN MacDIARMID, DeLand.

To Washington, D. C., Government Hospital for the Insane, for duty, Capt. GEORGE D. COON, Tampa.

To their homes and honorably discharged, Capt. MALCOLM GUNN, Tarpon Springs; Lieut. LOUIS B. BOUCHELL, New Smyrna.

Georgia

To Camp Gordon, for duty, Lieut. WALTER R. McCOY, Danielsville.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. GEORGE H. LANG, Savannah.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieut. LEE ROY HUTCHINSON, Adel.

To Fort Oglethorpe for instruction, Lieut. ROBERT C. MADDOC, Rome.

To Washington, D. C., Government Hospital for the insane, for intensive training, from Fort Oglethorpe, Lieut. JAMES K. PETTIT, Milledgeville.

Idaho

To Camp Sherman, Chillicothe, Ohio, for temporary duty, from St. Louis, Capt. ERWIN W. KLEINMAN, Hailey.

Illinois

To Ann Arbor, Mich., University of Michigan, for instruction, from Johns Hopkins Medical School, Major DEAN D. LEWIS, Chicago.

To Camp Doniphan, Fort Sill, Okla., as Divisional Tuberculosis Specialist, from Fort Oglethorpe, Capt. ROY T. RODAWAY, Chicago.

To Camp Grant, as member of the tuberculosis board, Lieut. JOSEPH S. LUNDHOLM, Rockford.

To Camp MacArthur, Waco, Texas, as member of tuberculosis board, from Camp MacArthur, Capt. HENRY ROBENSTEIN, Chicago.

To Camp McClellan, Anniston, Ala., as divisional tuberculosis specialist, Lieut. WALTER S. CONN, Naperville.

To Camp Pike, Little Rock, Ark., for temporary duty, Lieut. FREDERICK I. BROWN, Chicago.

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. EDWARD V. DEL BOCARRO, Chicago.

To Camp Sheridan, Montgomery, Ala., as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. JOHN E. DOLAN, Chicago.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. CHARLES J. TIERNEY, Cicero.

To Camp Wheeler, Macon, Ga., as *divisional tuberculosis specialist*, from Fort Oglethorpe, Capt. JAMES A. BRITTON, Chicago.

To Fairfield, Ohio, Wilbur Wright Field, Signal Corps, *Aviation School*, for duty, Lieut. CLEVELAND C. MacLANE, Chicago.

To Fort Douglas, Utah, as gas instructor, from Camp Doniphan, Lieut. CARL L. BARNES, Chicago.

To Fort Leavenworth, Kan., department laboratory, for duty, from Fort Riley, Lieut. MAYER A. NEWHAUSER, Chicago.

To Fort McPherson, Ga., for duty, Lieut. OLIVER P. BRITTIN, Petersburg.

To Fort Oglethorpe for duty, from Camp Gordon, Lieut. *HUDSON* McB. GILLIS, Wood River. For instruction, from Camp Wheeler, Lieut. EDWARD BUCKMAN, Chicago.

To Fort Riley for instruction, from Fort Riley, Capts. CHARLES H. POWELL, Old Ripley; CLARENCE W. CHAPIN, Weldon; for instruction Lieuts. WILLIAM R. WHITLEY, Chicago; ALVA E. McREYNOLDS, Peoria.

To Fort Snelling, Minn., for duty, from Fort Riley, Lieut. THOMAS D. CANTRELL, Bloomington.

To Rockefeller Institute for instruction and on completion *to his proper station*, from Fort Slocum, Major HENRY E. LEWIS, Chicago.

Indiana

To Camp Sheridan, Montgomery, Ala., for duty, from Camp Shelby, Lieut. FORREST L. REESE, Bicknell.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. EVERETTE F. GRAVE, Monrovia.

To Camp Upton, Long Island, N. Y., for duty, from Fort *Oglethorpe*, Major GEORGE L. GUTHRIE, Indianapolis.

To Camp Zachary Taylor, Louisville, Ky., for duty, Capt. EDWARD B. IMEL, Petersburg.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CLAUSIUS H. WHITE, Monrovia; Lieut. ALBERT G. GRUBB, Mongo.

Iowa

To Camp Beauregard, Alexandria, La., for duty, Lieut. ROBERT H. LOTT, Waverly.

To Camp Dodge, for duty, Lieut. HUGH P. BARTON, Davenport.

To Fort Oglethorpe for instruction, Capt. LEO E. EVENS, Waterloo.

To Fort Riley for instruction, Capt. EDWARD C. AYRES, Latimer.

Kansas

To Camp Greene, Charlotte, N. C., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. JACOB H. HALDEMAN, Paola.

To Fort Riley for instruction, Lieut. NOBLE E. MELLENCAMP, Dodge City; from Fort Riley, Lieuts. CHARLES M. MILLER, Oakley; SAM M. MYERS, Potter; LEONIDAS T. BROWN, Spearville.

To his home and honorably discharged, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

Kentucky

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. MICHAEL J. HENRY, Louisville.

To Fort *Oglethorpe* for instruction, Capts. JOHN T. PRICE, Harrodsburg; AMPLIAS W. DAVIS, Morton's Gap; Lieut. JOHN B. FLOYD, Louisville.

To Fort Riley, for instruction from Camp Grant, Capt. ALFRED H. KELLY, Shively; from Fort Riley, Lieuts. WILLIAM C. WORTHINGTON, Clintonville; HERMAN T. CARTER, Gilbertsville; JOHN C. ROGERS, Louisville; WASHINGTON I. BERRY, Washington; JAMES C. GRAHAM, Webbs.

To Louisville to recruit for the medical department of the Army, Capt. PHILIP E. BLACKERBY, Bowling Green.

Louisiana

To Fort Oglethorpe for instruction Lieut. WILLIAM L. STEWART, Pollock.

To Lake Charles, Gerstner Field, Signal Corps, Aviation School, for duty, Lieut. MICHAEL F. MORVANT, New Orleans.

To Laurel, Maryland, for duty, from Army Medical School, Lieut. TRUSS M. BRISTER, Bogalusa.

To Washington, D. C., Government Hospital for the Insane, for intensive training, from Fort Oglethorpe, Lieut. EDWIN M. LECY, Jackson.

Maine

To Camp Sevier, Greenville, S. C., for temporary duty, Lieut. THOMAS A. FOSTER, Portland.

Maryland

To Camp Sevier, Greenville, S. C., as divisional tuberculosis specialist, from Camp Sevier, Capt. WILLIAM H. YEAKER, State Sanatorium.

To Camp Wheeler, Macon, Ga., for duty, and on completion *to his proper station*, Major WILLIAM H. WELCH, Capt. ISIDORE I. HIRSCHMAN, Baltimore.

To Fort McHenry for duty, Lieut. MORRIS B. LEVIN, Baltimore.

To Fort Oglethorpe for duty, from Camp Wadsworth, Capt. THOMAS K. CONRAD, Chevy Chase.

To his home and the inactive list, Lieut. HAROLD C. BEAN, Baltimore.

Massachusetts

To Camp Devens for duty, Lieut. HORACE GRAY, *Boston*.

To Camp Doniphan, Fort Sill, Okla., for duty, Major GEORGE A. CRAIGIN, Boston.

To Camp Greene, Charlotte, N. C., for temporary duty, Lieut. RICHARD S. EUSTIS, Cambridge.

To Camp Hancock, Augusta, Ga., as divisional tuberculosis specialist, from Fort Oglethorpe, Capt. FRANCIS R. BURKE, Quincy.

To Camp Jackson, Columbia, S. C., for temporary duty, Capt. BRONSON CROTHERS, Cambridge.

To Camp Logan, Houston, Texas, as divisional tuberculosis specialist, from Fort Oglethorpe, *Capt.* WILLIAM M. GAY, Sharon.

To Camp Sevier, Greenville, S. C., *for* temporary duty, Lieut. GEORGE W. PAPEN, *Boston*.

To Camp Wheeler, Macon, Ga., *for* duty, from Fort Oglethorpe, Lieut. WILLIAM R. MORRISON, East *Boston*.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Lieut. JOHN McK. CLAFFY, Springfield.

To Fort Oglethorpe for instruction, Lieut. KENNETH L. DOLE, Jamaica Plain.

To New York City, Neurological Institute, *for* instruction, from Camp Devens, Capt. DAVID D. SCANNELL, Boston.

To Rockefeller Institute for instruction and on completion *to Army Medical School* for duty, Lieut. DAVID B. MEDALIA, Boston.

To San Francisco, Calif., Lettermann General Hospital, for duty, from Camp Kearny, Capt. SIDNEY M. BUNKER, *Boston*.

To Washington, D. C., for duty, from Fort Banks, Capt. BEN H. METCALF, Winthrop.

To his home and inactive list, Major SAMUEL J. MIXTER, Boston.

To his home and honorably discharged *on* account of physical disability existing prior to entrance *into the* service, Lieut. EMIL U. DILLENBACK, Springfield.

Michigan

To Camp Upton, Long Island, N. Y., for duty, from Cornell Medical College, Lieut. THEODORE KOLVOORD, Battle Creek.

To Cape May, N. J., and on completion *to his proper station*, Major WALTER R. PARKER, Detroit.

To Fort Oglethorpe for instruction, from Camp Jackson, Capt. CHARLES H. MERRILL, Detroit.

To Fort Riley, for instruction, from duty as a *private* at Camp Custer, Lieut. MYRON G. BECKER, Benton Harbor.

To Long Island City, Long Island, N. Y., for temporary duty, Lieut. CALVIN R. ELWOOD, Menominee.

To New York City, Neurological *Institute, for instruction*, Lieut. WILLIAM R. McCLURE, Detroit.

To San Antonio, Texas, Brooks Field, for duty, from Kelly Field, Capt. HENRY S. BARTHOLOMEWS, Lansing.

Minnesota

To Camp Beauregard, Alexandria, La., for duty, Lieut. ALBERT E. JOHANN, Minneapolis.

To Dansville, New York, for duty, Capt. JOSEPH M. A. GRAVELL, St. Paul, Lieut. LOUIS R. KOLLER, South Minneapolis.

To Fort Omaha, Neb., as gas instructor, from Camp Doniphan, Lieut. BRET V. BATES, Wheaton.

To Fort Sam Houston, Texas, for assignment to duty, Lieut. FRANCIS G. BLAKE, *Minneapolis*.

To Memphis, Tenn., Park Field, *Signal Corps*, *Aviation School*, *for* duty, Lieut. *GROVER C. BLACK*, *Minneapolis*.

To Washington, D. C., for duty in the *Surgeon-General's* Office, from duty as medical adviser to the Governor of Minnesota, Major WILLIAM J. MAYO, *Rochester*.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WARD AKESTER, Marshal.

Mississippi

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Lieut. GEORGE D. MASON, Clara.

To Camp Sheridan, Montgomery, Ala., for temporary duty, from Fort Oglethorpe, Lieut. MAURY H. McRAE, Corinth.

To Fort Oglethorpe for instruction, from Camp Greene, Lieut. VIRGIL N. *NICHOLS*, *Carson*.

To New York City, Neurological Institute, for instruction, from Camp Hancock, Augusta, Ga., Capt. FREDERIC HAGLER, St. Louis.

Missouri

To Camp Pike, Little Rock, Ark., for duty, Lieut. CLAY SPENCER, Rushville.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. WILLIAM J. SAY, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. ALLEN G. WAINWORTH, St. Louis.

To Camp Upton, Long Island, N. Y., for duty, from Cornell Medical College, Lieut. *REZIN* C. SHAWHAN, Hale.

To Fort McPherson, Ga., for duty, Major JOHN F. BINNIE, Kansas City.

To Fort Oglethorpe for instruction, from Camp Doniphan, Capt. CLAUDE E. FRAZIER, Kansas City; from Camp Wheeler, Capt. SOLON CAMERON, St. Louis.

To Fort Riley for instruction, Capt. JAMES F. COOPER, Hannibal; from Camp Pike, Capt. AUGUST A. GOSSOW, St. Charles. For instruction, Lieuts. JAMES C. McKAY, Kennett; WILLIAM G. HOGAN, Neck City; from Fort Riley, FREDERICK H. BROWN, Billings.

To Hot Springs, Ark., Army and Navy General Hospital, for duty, Capt. JAMES G. CALHOUN, St. Louis.

To Memphis, Tenn., Park Field, Signal Corps, Aviation School, for duty, Lieut. RALPH E. JONES, Vichy.

To New York City, for inspection and on completion *to his proper station*, Major FREDERICK W. BAILEY, St. Louis.

To Williamsbridge, N. Y., for duty, from Cornell Medical College, Lieut. ZACHARIAH C. JONES, Kansas City.

Montana

To Fort Oglethorpe for duty, from Camp Sheridan, Lieut. KARL A. SNYDER, Great Falls.

To Fort Riley for instruction, Lieut. JAMES B. REYNOLDS, Great Falls.

Nebraska

To Fort Oglethorpe for duty, Lieut. GEORGE W. COVEY, Lincoln.

To Fort Riley for instruction, Lieuts. JAMES E. M. THOMSON, Lincoln; from Fort Riley, WILLIAM O. AKERS, Florence.

To Memphis, Tenn., Park Field, Signal Corps, Aviation School, for duty, Lieut. VINCENT L. JONES, Omaha.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. CLELAND G. MOORE, *Omaha*; CHARLES N. MERIWETHER, Pauline.

Nevada

To Camp Lewis, American Lake, Wash., as consultant in orthopedic cases, from duty as a private at Camp Lewis, Lieut. RAY V. LAZALERE, Kimberly.

To Fort Riley for instruction, Lieut. JOHN G. KITCHEN, Mine.

New Hampshire

To *his home* and honorably discharged on account of physical disability existing prior to entrance into the service. Lieut. ERNEST W. LOWE, Fremont.

New Jersey

To Albany, N. Y., for duty, Lieut. ROBERT J. CHILDERS, Plainfield.

To Fort Porter, N. Y., for temporary duty, Capt. HARRY VAUGHAN, Morristown.

To Fort Riley, for instruction, from Fort Riley, Lieut. CHARLES ENGLANDER, Cedar Grove.

To Garden City, Long Island, N. Y., Aviation Section, Signal Corps for duty, Lieut. GEORGE GINSBERG, Hoboken.

To Laurel, Md., for duty, *from Camp Zachary* Taylor, Capt. LUCIUS F. DONOHOE, Bayonne; from Army Medical School, Lieut. THOMAS M. MORRIS, Cranford.

To Morrison, Va., Aviation Section, Signal Corps, for duty, Lieut. ERNESTO CASINI, Garfield.

To his home and the inactive list, from Army Medical School, Lieut. THOMAS L. PELLETT, Hamburg.

New York

To Albany, N. Y., for duty, Capt. REXWALD BROWN; from Camp Travis, Capt. FRED M. MEADER, New York City; from Camp Wheeler, Capts. EDWIN L. DRAPER, CLINTON B. HAWN, Albany; from Camp Upton, Lieut. JONATHAN PEARSON, Schenectady; from Cornell Medical College, *Lieut.* WILLIAM D. HOWARD, Albany; from Rockefeller Institute, Lieut. HARRY C. SCHMEISSER, New York City.

To Camp Beauregard, Alexandria, La., for duty, from Camp Logan, Lieut. WALTER S. BENNETT, Glens Falls.

To Camp Devens, Ayer, Mass., for temporary duty, from Camp Devens, Capt. GEORGE B. BROWN, Saratoga Springs.

To Camp Dix, Wrightstown, N. J., *as member of a board to examine the* command in nervous and mental diseases, Lieuts. EUGENE W. BOUDREAU, Asbury; WILLIAM G. DICKINSON, Oneonta.

To Camp Greene, Charlotte, N. C., as divisional tuberculosis specialist from Camp Dix, Capt. HENRY C. DREW, Brooklyn; for assignment to duty, from Fort Oglethorpe, Lieut. GILBERT A. ASHMUN, Brooklyn.

To Camp Sevier, Greenville, S. C., for duty, Capt. SAMUEL W. SCHAPIRA, New York City.

To Camp Travis, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. EUGENE CALVELLI, New York City. For temporary duty, Lieut. FRANK E. FOX, Fulton.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. VINXENZO PASCALE, New York City.

To Dansville, for duty, Capt. HICKSON F. HART, Peekskill.

To Fort Dupont, Del., to conduct a medical examination in his specialty and on completion *to his proper station,* Capt. SANGER BROWN, II, White Plains.

To Fort Monroe, Va., for duty, from Army Medical School, Lieut. LOUIS M. PASTOR, Kings Park, Long Island.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Lieut. BENJAMIN RABBINER, Brooklyn.

To Fort Oglethorpe for duty, Lieut. DANIEL J. SWAN, Brooklyn; for instruction, Lieuts. SAMUEL PERLMAN, Brooklyn; THOMAS J. LUBY, ORVILLE H. RICHER, New York City.

To Fort Riley for duty, Lieut. SAMUEL T. NICHOLSON, Jr., Clifton Springs. For instruction Lieut. FREDERICK D. KEPPEL, Tincklaen.

To Garden City, Long Island, Aviation Section, Signal Corps, for duty, Lieuts. MORRIS AUSLANDER, Bronx, New York City; JACOB N. COHEN, Brooklyn; HARRY FRIED, JAMES V. SMITH, JOSEPH I. WALLACH, New York City.

To Laurel, Md., for duty, from Army Medical School, Lieuts. FLOYD J. ATWELL, Cooperstown; WILLOUGHBY C. PENDILL, Huntington.

To Macon, Ga., Collegiate Balloon School, for duty, from Camp Wheeler, Lieut. JOHN A. MORRISSEY, Newark.

To Mineola, Long Island, Hazelhurst Field, Signal Corps, Aviation School, for duty, Lieut. HENRY A. SUSSMAN, Brooklyn.

To Morrison, Va., Aviation Section, Signal Corps, for duty, Lieuts. WILLIAM H. FERRIERS, Fairport; BURTON L. STERNER, New Brighton, Staten Island; EDWIN M. WEIL, New York City.

To New York City for temporary duty, Capt. HARRY M. WEED, Buffalo. Orthopedic Hospital, for orthopedic instruction and on completion *to his proper station,* from Rochester, Capt. CHARLES W. HOYT, Rochester. Cornell Medical College, for instruction from Fort Oglethorpe, Lieut. ALEXANDER W. JACOBS, Bronx, New York City. For duty, from Fort Oglethorpe, Lieut. LOUIS GOLD, Brooklyn; Neurological Institute. For intensive training, Lieut. WALTER F. STILLGER, New York City.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Capts. FRANCIS W. McGUIRE, Buffalo; BURTON S. BOOTH, Troy; Lieuts. LOUIS E. BRESLAU, Brooklyn; WILLIAM J. JACOBS, Carthage.

North Carolina

To Camp Greene, for duty, from Camp Greene, Lieuts. ROBERT P. BECKWITH, Rosemary; ROBERT J. LOVILL, Wingate.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, from Camp Greene, Lieut. MICHEL SALIBA, Wilson.

To Camp Wheeler, Macon, Ga., for duty, from Camp Lee, Capt. SYLVESTER D. CRAIG, Winston Salem.

To Fort Oglethorpe for instruction, Lieut. WILLIAM MONCURE, Jr., Hamlet.

To Morrison, Va., Aviation Section, Signal Corps, for duty, Lieut. JAMES G. RABY, Tarboro.

To their homes and honorably discharged Lieuts. THOMAS B. HENDERSON, Henderson; GLENN LONG, Newton.

Ohio

To Camp Cody, Deming, New Mexico, for duty, from Fort Leavenworth, Capt. JAMES F. ELDER, Youngstown.

To Camp Devens, Ayer, Mass., for duty, from Fort Riley, Lieut. ALBERT G. EYESTONE, Gibsonburg.

To Camp Sherman, for temporary duty, Lieut. ROYAL G. GROSSMAN, Cleveland.

To Camp Travis, Fort Sam Houston, Texas, for temporary duty, *from* Eagle Pass, Texas, Lieut. FRANCIS W. McNAMARA, Youngstown.

To Fairfield, Wilbur Wright Field, Signal Corps, Aviation School, for duty, Lieut. JOSEPH R. MONTGOMERY, Steubenville.

To Fort McHenry, Md., for temporary duty and on completion *to his proper station,* Capt. CARROLL L. STOREY, Oberlin.

To Fort Oglethorpe for instruction, Capt. ORIN W. ROBE, Portsmouth; from Camp Jackson, Capt. WILLIAM S. P. DONEHOO, *Wintersville.* For instruction, Lieuts. RALPH S. HOSLER, Amanda; HENRY L. PRICE, Toledo. For duty, from Camp McClellan, WILLIAM S. NICHOLS, Cleveland.

To their homes and honorably discharged, *Major* WILLIAM F. *MARTING,* Ironton; Lieuts. JOHN H. SCHROEDER, Cincinnati. On account of physical disability existing prior to entrance into the service, Lieuts. DANIEL HEIMLICH, Cleveland; IVAH J. SANSBOTTOM, Coldwater.

Honorably discharged on account *of physical disability* existing prior *to entrance into the* service, Lieut. CLINTON C. SHRADER, Toledo.

Oklahoma

To Fort Riley, for instruction, Lieut. FREDERICK R. SUTTON, Bartlesville.

To Oklahoma City as instructor, Lieut. *REUBEN M. HARGROVE,* Norman. *For orthopedic instruction,* from San Antonio, Lieut. GARDNER H. APPLEWHITE, Shawnee.

To St. Louis, Washington University, *for instruction* in urology and dermatology, from Fort Leavenworth, Lieut. JOSEPH H. SANFORD.

Oregon

To Fort Riley, for instruction, from Camp Lewis, Lieut. GEORGE G. CARL, John Day.

To Los Angeles, for orthopedic instruction, from Fort D. A. Russell, Capt. RICHARD B. DILLEHUNT, Portland. For instruction *in* orthopedic surgery, *Lieuts. CHESTER A. DOWNS,* Portland; VICTOR L. ROCHO, Woodburn.

Honorably discharged on account of physical disability existing *prior* to entrance into the service, Lieut. JAMES C. MATTHIS, Monmouth.

Pennsylvania

To Camp Bowie, Fort Worth, Texas, for duty, *from* Camp Meade, Major THOMAS W. JACKSON, *Philadelphia.*

To Camp Dix, Wrightstown, N. J., as senior officer of a board to examine the command in nervous and mental diseases, from Newport News, Capts. RALPH L. HILL, Woodville. As member of board to examine the command in nervous and mental diseases, Capt. PERCY DeLONG, Philadelphia; from Hoboken, Lieut. MATTHEW C. BAINES, *Philadelphia.* For duty, Lieut. KARL S. SIMPSON, Pittsburgh; from Camp Grant, Lieut. EDGAR N. FOUGHT, Philadelphia.

To Camp Greene, Charlotte, N. C., for temporary duty, Lieut. WALTER E. BROWN, Pittsburgh.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieuts. FRANCIS M. B. SCHRAMM, Johnstown; SAMUEL FIRESTONE, Jr., McKeesport.

To Camp McClellan, Anniston, Ala., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. ANDREW ANDERS, Philadelphia.

To Camp Travis, Fort Sam Houston, Texas, as member of tuberculosis board, from Fort Riley, Lieut. MAURICE I. STEIN, New Bloomfield.

To Camp Upton, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. CARL F. KOENIG, Philadelphia.

To Camp Wadsworth, Spartanburg, S. C., as divisional tuberculosis specialist, from Camp Gordon, Capt. ALBERT P. FRANCIS. For duty, Lieut. SAMUEL SINGER, Philadelphia.

To Camp Wheeler, Macon, Ga., for duty, Lieut. CHARLES R. HUGHES, Philadelphia.

To Fort Oglethorpe, for instruction, Lieuts. WILLIAM F. HERBST, Allentown; EZRA P. DICKINSON, St. Michael; PATRICK F. McHUGH, Wilkes-Barre.

To Mineola, Long Island, N. Y., Hazelhurst Field, Signal Corps, Aviation School, for duty, Lieut. ELLIS C. WINTERS, Ford City.

To New York City, Neurological Institute, for instruction, from Camp Lee, Major EWING W. DAY, Pittsburgh.

To Rockefeller Institute, for instruction, and on completion *to his proper station,* Capt. JAMES D. BLEVINS, Pittsburgh.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Major JOHN F. CULP, Harrisburg; Lieut. JESSE B. HOWE, Erie.

To their homes and honorably discharged, Lieuts. CHARLES E. PEACH, Pine Grove; HOWARD A. COLLINS, Winberne.

Porto Rico

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Hancock, Capt. EMMET I. VAUGHN, Central Aguirre.

Rhode Island

To Garden City, Long Island, N. Y., Aviation Section, Signal Corps, for duty, Lieut. GEORGE A. RICE, Providence.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. CHARLES F. GORMLY, Providence.

South Carolina

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. FRENCH A. SMITH, Mullins.

Tennessee

To Camp Meade, Annapolis Junction, Md., Capt. THOMAS P. MILLER, Knoxville. For duty, from Fort Myer, Lieut. ALLEN L. LEAR, Sewanee.

To Camp Pike, Little Rock, Ark., for duty, Lieut. DAVID DeW. MONCRIEF, Shelbyville.

To Fort Oglethorpe, for instruction, Capt. CHARLES PENDER EDWARDS, Kingsport; Lieut. ALEXANDER J. BRYANT, Sharon.

To San Antonio, Texas, Kelly Field, for assignment, from Austin, Texas, Lieut. FLEMING J. O'CONNOR, Jackson.

To Washington, D. C., Government Hospital for Insane, for intensive training, Lieut. WILLIAM B. LUNSFORD, Nashville.

To his home and honorably discharged, Lieut. CHARLES H. KYLER, Oliver Springs.

Texas

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. ERNEST J. STEVES, San Antonio.

To Camp Pike, Little Rock, Ark., for temporary duty, Lieut. EDWARD T. MILLER, Newton.

To Camp Shelby, Hattiesburg, Miss., for duty, Capt. JAMES W. GARTH, Beaumont.

To Camp Travis, Fort Sam Houston, for duty, from Camp Travis, Capt. GEORGE S. MILNES, Houston.

To Camp Upton, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JESSE L. HALL, Bertram.

To Fort Logan H. Roots, Little Rock, Ark., for temporary duty, from Fort Oglethorpe, Lieut. ROBERT L. HOWELL, Snyder.

To Fort McPherson, Ga., for duty, Lieut. CHARLES W. STEVENSON, Loraine.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Lieut. ROGER ATKINSON, Pleasanton.

To Fort Riley, for instruction, Lieuts. ROBERT V. MURRAY, Austin; JAMES H. HAPPEL, Cleburne.

Vermont

To Fort Monroe, Va., for duty, from Fort Monroe, Lieut. LEWIS F. McCARTHY, Essex.

To *Williamsbridge, N. Y.*, for duty, from Cornell Medical College, Lieut. RAY B. THOMAS, Enosburg Falls.

Virginia

To Camp Meade, Annapolis Junction, Md., for duty, from Camp Meade, Lieut. FRANK LEVINSON, Hopewell.

To Fort Oglethorpe, for instruction, Lieuts. WADE CLEVELAND PAYNE, Haymarket; PAUL DAVIS, Roanoke.

To Morrison, Va., Aviation Section, Signal Corps, for duty, Lieut. ALLEN C. BILLER, Forestville.

Washington

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Lieut. HENRY W. BORTNER, Sultan.

To Camp Lewis, for temporary duty, Capt. ALFRED J. HELTON, North Yakima.

To Fort Riley, for instruction, Lieut. PIUS A. ROHRER, Spokane.

To Los Angeles, for instruction in orthopedic surgery, Capt. EVERETT O. JONES, Seattle. For orthopedic instruction, and on completion of this course *to his proper station*, from Fort Worden, Capt. RICHARD C. HILL, Irondale.

To Portland, Ore., United States Signal Corps, for duty, Lieut. LORENZO S. DEWEY, Okanogan.

To report by wire to the commanding general, Western Department, for assignment to duty, from duty as a private at Camp Lewis, Lieut. VEZIO C. UNGHERINI, Camp Lewis.

West Virginia

To Camp Greene, Charlotte, N. C., for assignment to duty, from Fort Oglethorpe, Capts. ALBERT L. GRUBB, Berkeley Springs; BARRICK S. RANKIN, Tunnelton.

To Fort Myer, Va., for duty, from Fort Oglethorpe, Lieuts. GEORGE P. McCOY, Franklin; WILLIAM E. WHITESIDE, Harrisville.

To Fort Oglethorpe, for instruction, Lieuts. THURMAN E. VASS, Bluefield; JOHN P. FARSON, Charleston; AUBREY F. LAWSON, Weston.

To his home and honorably discharged, Lieut. CONRAD F. SAYRE, Mason.

Wisconsin

To Camp Pike, Little Rock, Ark., for duty, Capt. HOMER SYLVESTER, Montfort.

To Fort Oglethorpe, for instruction, Lieut. DEXTER H. WITTE, Hartford.

To Memphis, Tenn., Park Field, Aviation School, Signal Corps, for duty, Lieut. EARL L. SHARP, Plymouth.

To Mineola, Long Island, Hazelhurst Field, medical research board, aviation section, signal corps, for duty, and on completion to *Camp Upton*, Long Island, N. Y., and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

To Williamsbridge, N. Y., for duty, from Cornell Medical College, Lieut. HARRY B. PODLASKY, Milwaukee.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOHN R. HUGHES, Dodgeville.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST, SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Officers.—San Mateo County Medical Society, at San Mateo, February 7: president, Dr. F. Holmes Smith, San Bruno, and secretary, Dr. Frank S. Gregory, Redwood City.

California Law Upheld.—The United States Supreme Court January 21, decided that the California medical practice act licensing and governing healers of the sick is constitutional. The validity of the law had been attacked by a chiropractor on account of the alleged discrimination in favor of Christian Scientists.

Personal.—Dr. Wilfred H. Kellogg, Berkeley, was elected secretary and executive officer of the state board of health at its meeting, held at Sacramento, February 2. He succeeds Dr. Wilbur A. Sawyer, Sacramento, resigned to enter military service. Dr Frank L. Kelly, Berkeley, succeeds Dr. Kellogg as epidemiologist and director of the state bureau of communicable diseases.——Dr. Lester Keller has been reelected secretary of the Yorba Linda Chamber of Commerce.

CONNECTICUT

Health Association Officers.—At the annual meeting of the Connecticut Public Health Association, Dr. Stephen J. Maher, New Haven, was elected president; Dr. Charles J. Bartlett, New Haven, vice president, and Dr. Charles P. Botsford, Hartford, secretary.

Personal.—Drs. Karl B. Bretzfelder and W. F. Westevelt, New Haven, have been elected members of the staff of the Grace Hospital, New Haven.——Dr. Charles Fitzgerald, Hartford, for two years in the service of the Austrian government, has returned to the United States.——Dr. Anthony J. Hill, formerly of Torrington, who was committed to the Norwich State Hospital in 1914, has been missing from the state hospital for several months, and all trace of him is said to have been lost.

COLORADO

Cooperation in Prevention of Venereal Diseases.—The city council of Denver has passed an ordinance which was signed by the mayor, Feb. 19, 1918, in pursuance of the general plan of cooperation by state, county and municipal governments with the military and public health authorities of the United States, declaring syphilis, gonorrhea and chancroid communicable diseases dangerous to the public health, and requiring physicians, hospitals, sanatoriums and other institutions to report all such cases within forty-eight hours after coming to their knowledge, to the manager of health and charity, with the name, address and occupation of the afflicted person. It also requires persons having such diseases, whether they consult a physician or not, to report within forty-eight hours to the same department. Druggists or other persons filling prescriptions or selling medicines for the relief of such diseases must also keep a record and make a like report to the department. The records shall be confidential and not open for public inspection, but any person giving a false name or address or occupation shall be deemed guilty of a violation of the ordinance.

GEORGIA

The J. B. White Fund.—Among the many claims for the J. B. White Fund which have been presented to the committee in charge were the building of clinics, laboratories, and a dispensary in connection with the medical college of the University of Georgia, Augusta.

Personal.—Dr. William W. Meriwether, an intern at the Macon Hospital, who has been on trial on the charge of involuntary manslaughter, was acquitted, February 8. It was charged that Dr. Meriwether had been negligent in administering ether during an operation for the reduction of a fracture of the arm.——Dr. Melville C. Martin, Atlanta, has been reelected physician to the city prison for the fourteenth executive term.——Dr. Claude A. Smith has resigned as pathologist of Atlanta and has been succeeded by Dr. Elmore C. Thrash.——Dr. Robert G. Stone, Hawkinsville, has been appointed a member of the medical staff of the state sanatorium, Milledgeville.

ILLINOIS

Personal.—Dr. Josephine Milligan, Jacksonville, has been called for service in France, through the Rockefeller Foundation, and will work directly under the French government.

Drake Makes Tour of Army Camps.—Dr. C. St. Clair Drake, Springfield, director of the state department of health, has just returned from a trip of three weeks during which he visited army camps in Missouri, Arkansas, Tennessee, Mississippi, Louisiana and Kentucky. Dr. Drake made this trip as a representative of the communicable disease department of the United States Public Health Service, and conferred with the state health authorities regarding the spread of venereal diseases and other communicable diseases in the zones surrounding military camps.

Chicago

Medical Charities Need Funds.—It is announced by John E. Ransom, chairman of the Central Council of Social Agencies, that twelve hospital, medical and nursing agencies in Chicago need $200,000 outside of all regular sources of income for their work planned for this year.

War and the Medical Profession.—At conferences held, February 15 to 17, inclusive, at the Northwestern University building under the auspices of the Young Men's Christian Association and the student volunteer movement for foreign missions, the general topic for discussion was "The War and the World Responsibility of the Medical Profession." On the second evening, Dr. William A. Evans spoke on "Some Achievements of the American Doctors and Nurses in the Various War Zones."

Personal.—Dr. and Mrs. Hugh T. Patrick have left for California to spend the rest of the winter.——Dr. N. Elizabeth Todd was awarded $20,000 damages against the Madison Building Company on February 23, by a jury in Judge Torrison's court. Dr. Todd was crushed by an elevator in the American Bank Building in 1914, and entered suit for $75,000 damages.——Dr. Emma W. Gillmore has arrived in Chattanooga to take charge of the physical examination of female restaurant employees in the military zone near Chattanooga.

INDIANA

Osteopath on Health Board.—Much opposition was aroused at Frankfort, recently, because an osteopath had been appointed as secretary of the county board of health. The legality of the appointment of one not licensed as a physician is questioned.

Compulsory Vaccination Authorized.—By a vote of six to three, the city council of Indianapolis passed an ordinance authorizing the city board of health to enforce vaccination whenever there is an epidemic or danger of an epidemic of smallpox. This ordinance applies only to those who have never been successfully vaccinated and would affect perhaps not more than 25 per cent. of the population.

State Tuberculosis Society Officers.—At the annual meeting of the Indiana Society for the Prevention of Tuberculosis held in Evansville, February 1 and 2, Dr. Roscoe L. Sensenich, South Bend, was elected president, and Drs. Gardner C. Johnson, Evansville; Henry B. Shacklett, New Albany; Walter A. Gekler, Terre Haute; A. J. Garrish, Seymour; William J. Martin, Kokomo, and Otis B. Nesbit, Gary, were elected as members of the board of directors.

Personal.—Dr. E. P. Davenport, Craigville, suffered a cerebral hemorrhage while staying at Ossian, January 26, and is reported still to be in a serious condition.——Dr. William H. Long, now special smallpox physician of Indianapolis, has been appointed contagious disease physician to succeed Dr. William H. Dowd, resigned.——Dr. Gardner C. Johnson, Evansville, was elected vice president of the Association of Secretaries of Anti-Tuberculosis Societies held at Evansville, February 1.

Car Sanitation.—Inspectors from the state board of health and the public service commission have started an inspection and investigation of the service and sanitary conditions on the cars of the Union Traction Company of Indiana, following numerous complaints to the state agencies concerning conditions of service and cars operating between Indianapolis and Fort Benjamin Harrison. If the insanitary conditions of which complaint is made are found. Dr. Hurty, state health commissionr, said that evidence will be laid before the prosecuting attorneys of the counties involved, with instructions that prosecutions shall be brought against the traction company under the general sanitary law, which makes "generating, transmitting or promoting disease" a crime.

IOWA

Hospital Offered Grinnell.—The Sisters of St. Francis, Clinton, have submitted a proposition to the citizens' hospital committee at Grinnell, that they propose to erect and maintain a modern hospital with thirty-five beds, and a four-bed contagious disease annex in Grinnell, and to open a training school for nurses, contingent on the citizens' purchasing a 5-acre site in the city of Grinnell and donating $15,000 in cash before July 1, 1918.

Personal.—Rewel H. Sylvester, director of the psychologic clinic of the University of Iowa, Iowa City, has gone to Fort Oglethorpe, Ga., as a member of the psychologic examining group of the cantonment at that post.——Dr. John P. Sprague, head of the department of hygiene and physical education at Grinnell College, has been called to Washington as assistant to Major Philip S. Doane, Chicago, national director of health and sanitation for the United States Shipping Board.

Venereal Disease Organization.—Dr. Robert A. Weston, Des Moines, has been placed in charge of the newly organized venereal disease unit at Des Moines. He has working with him one male and one female nurse, two social service nurses and four policemen. The clinic is housed in three rooms in the basement of the new city hospital, and is open between 12:30 and 2:30 daily. Eventually an internment will be established, where all persons found to be suffering from venereal diseases will be placed.

KENTUCKY

Salary Changes and Appointments.—The new fiscal court, composed of three of the newly elected county commissioners, has reduced the salary of the county health officer to $2,500 from $3,500; appointed Melville Dailey, sanitary inspector, at $100 a month; allowed a salary of $100 a month to a clerk in the health office, and fixed the salary of Dr. T. M. Dorsey, county bacteriologist, at $100 a month. The court also decided that all supplies and medicines for the county health office be purchased on requisition approved by the court.

MARYLAND

New Hygiene Faculty.—Dr. William H. Welch, Baltimore, announced the following appointments to the Institute of Hygiene and Public Health to be opened in Baltimore next October: Dr. Carroll G. Bull of the Rockefeller Institute, New York, associate professor of immunology and serology, and Dr. Raymond Pearl, of the experiment station, to take charge of the department of biometry and vital statistics.

Historical Club Meets.—At the second meeting of the Historical Club of Johns Hopkins Hospital, Baltimore, February 11, Dr. David I. Macht presented a paper on "Pharmacological Appreciation of Shakespeare's Hamlet"; Dr. John C. Hemmeter, a paper on "Lavoisier and the History of the Physiology of Respiration and Metabolism: Contemporaneous Views of Life's Processes," and Dr. Howard A. Kelly presented a short paper on "America's Physiologist, Dr. John R. Young of Hagerstown."

Personal.—Dr. Charles A. Riefschneider, senior resident surgeon of the University Hospital, Baltimore, has been appointed superintendent to succeed Dr. Harry M. Stein, who has resigned to enter the military service.——Dr. Chester P. Woodward has been appointed secretary of the Baltimore Health Department, succeeding Dr. Austin H. Wood, who has entered the military service.——The residence of Dr. J. Hubert Wade, Boonsboro, was destroyed by fire, recently.——Dr. William H. Welch has been reelected president of the University Club, Baltimore.

MICHIGAN

Municipal University Planned.—Plans are on foot to establish a municipal university in Detroit, of which the Detroit College of Medicine and Surgery is to be the medical department. The city is asked to provide $30,000 a year.

Income Tax Protested.—At the meeting of the Council of the Michigan State Medical Society in Detroit, January 23, a resolution was adopted protesting against the extra 8 per cent. tax on incomes over $6,000 earned by professional men. Dr. William T. Dodge, Big Rapids, was reelected chairman of the council; Dr. Arthur L. Seeley, Mayville, vice president; Dr. Frederick C. Warnshuis, Grand Rapids, secretary, and Dr. D. Emmett Welsh, Grand Rapids, treasurer.

Personal.—Dr. Richard E. Mercer has been elected president; Dr. David H. O'Donnell, vice president, and Dr. George C. Chene, secretary-treasurer of Providence Hospital, Detroit.

——Dr. W. L. Arntz, Sunfield, who was seriously burned by an explosion of gasoline in Aberdeen, S. D., recently, has recovered and returned home.——Fred B. Jones has been appointed superintendent of the Detroit Receiving Hospital, succeeding Dr. Leo J. Dretzka, resigned to enter military service.

Venereal Clinics.—The Calhoun County Medical Society has decided to operate a free venereal clinic in Battle Creek. The clinic will make a free examination of every person who presents himself for examination, but will not treat persons who are able to pay for treatment. Since November 1 the secretary of the state board of health has been able to secure records of 2,000 cases of venereal disease and an endeavor is being made to trace the source of infection and to intern for treatment the men and women who have the disease.

MINNESOTA

City Proposes Ordinance Against Quackery.—An ordinance has been introduced in the city council of Duluth in opposition to quackery. The ordinance is being opposed by chiropractors and other irregular practitioners.

The Mayo Unit.—The Mayo Unit, Rochester, of which Major Louis B. Wilson, M. R. C., U. S. Army, is director, with Capts. Wayne W. Bissell and Arthur U. Des Jardins as assistant directors, has left for a mobilization point preparatory to sailing for France.

Excess Sanatorium Payments Refunded.—Six counties out of eight, which contributed to the establishment of a tuberculosis sanatorium at Worthington, have been refunded $1,600 from excess levies paid during 1917. The largest amount received was about $238.98, by Cottonwood County, and the smallest amount was $91.24 by Jackson County.

State Health Board to Move.—The revised budget for social hygiene work includes $4,000 for rental of offices to be shared by the state board of health and the hygiene commission. The space now occupied and the capital used by the state board are too small and requests for increased space have not been granted.

Personal.—Dr. Henry W. Cook, Minneapolis, has been chosen chairman of the "health week" committee.——Dr. Fred A. Carrell, Minneapolis, sentenced to imprisonment last October for one year, is said to have been pardoned by the state pardon board, February 7.——F. W. Cappelen, city engineer, Minneapolis, has been appointed a member of the state board of health to succeed Dr. William A. Jones, Minneapolis, term expired.——Dr. Isaac I. Gellman has resigned as resident physician of the Minnesota State Sanatorium, to accept a similar position in the Pennsylvania State Sanatorium for Tuberculosis No. 3, Hamburg.

MISSOURI

Service Flag Dedicated.—A service flag bearing twelve stars, donated by Dr. Charles Wood Fassett, St. Joseph, was dedicated at the meeting of the Buchanan County Medical Society, February 20.

Personal.—Dr. Thomas J. Rigdon, Kennett, has been appointed coroner of Dunkin County to fill the vacancy caused by the resignation of Ernest F. Harrison to join the military service.——Dr. Robert C. Forsyth, Kirkwood, suffered a loss of about $20,000 by the destruction of his house by fire, February 11.——Dr. Martha M. Bacon, Kansas City, has been recommended by the Women's International Hospital Commission for roentgen-ray service in connection with war service.——Dr. Joseph B. Hawkins, Mexico, was struck by a train at a grade crossing, February 11, and sustained a comminuted fracture of the leg.——The offices of Drs. John T. Boland, William Frye, H. L. King and Albert W. Bleil, Kansas City, were damaged by fire to the extent of $10,000, February 3.

St. Louis

Murderer of Physician Sentenced.—Jacob Stenzel, who killed Dr. Frederick L. Pohlmann, May 14, was found guilty of murder in the second degree in the criminal court, February 19, and sentenced to imprisonment for ten years in the penitentiary.

NEBRASKA

Personal.—Dr. Warren M. Phillips, assistant physician at the Norfolk State Hospital has resigned to enter the United States service.

Morbidity and Mortality Statistics of Lincoln.—During 1917, there were in Lincoln 115 deaths from the contagious diseases, including pulmonary tuberculosis and pneumonia, as against seventy-eight for the previous year. There was a total of 2,030 cases of contagious disease during 1917, as against 794 for 1916. Deaths from all causes numbered 708 in 1917, as against 668 in 1916, giving a death rate of 11.8 per thousand for the former year, as compared with 11.13 for the latter. The number of births in 1917 was 1,200 and in 1916, 1,205. The figures seem to coincide with the general increase of contagious diseases in the middle western states in 1917 over 1916. The increased number of deaths in Lincoln was confined to diphtheria, measles, lobar pneumonia and pulmonary tuberculosis. The excess of deaths from pneumonia occurred in January after an epidemic of influenza in the preceding month. The other contagious diseases showed a decrease.

NEW YORK

Preserving Vital Statistics Records.—The bureau of vital statistics of the Buffalo department of health has installed apparatus by which all certificates filed with the bureau are photographically copied and filed for record. The state law requires that the original certificates must be sent to the state department of health. The photographic method eliminates the possibility of error in copying and provides an exact reproduction of the original.

Personal.—Dr. Edward Clark, Buffalo, has been relieved of his duties as acting chief of the division of child hygiene of the state department of health at Albany, and has returned to his former duty as sanitary supervisor of the western part of the state, with station at Buffalo. Dr. Herman F. Senftner, New York City, has succeeded Dr. Edward Clark as the head of the division of child hygiene, pending the release of Dr. Henry L. K. Shaw, Albany, from military service.——About fifty physicians of Binghamton gave a dinner in honor of Dr. Daniel S. Burr, February 14, commemorating his semicentenary as a medical practitioner of Broom County.——Dr. Helen R. Pallieter has been selected as city physician of Poughkeepsie.

The Record of One Hospital.—Up to January 10, among the physicians connected with the Mount Sinai Hospital, seventy-five have been commissioned in the Medical Reserve Corps. Of these, seventeen were members of the attending staff, twenty-two members of the outpatient staff, eight specialists and twenty-eight interns. In addition, more than forty members of the alumni association of the hospital have been commissioned and assigned to duty. One member of the board of trustees of the hospital is a major in the Quartermaster Corps, and one a major in the Engineer Corps, and two members are giving full time service to the American Red Cross. Also sixty-five nurses, including the associate superintendent and the night superintendent of the training school comprise the nursing staff of Base Hospital Unit No. 3, the Mount Sinai Hospital Unit, which is now in foreign service.

New York City

Conference on Hospital Social Service.—The New York conference on hospital and social service held a meeting at the Academy of Medicine, February 20. Dr. William Francis Honan spoke on "The Importance of Social Service in a Municipal Hospital," and Dr. James Alexander Miller made an address on "Social Conditions in France."

Health Department Extends Autonomy Plan.—The new health commissioner, Dr. J. Lewis Amster, has announced that hereafter in the boroughs of the Bronx and Queens, the assistant sanitary superintendent will be responsible for most of the administrative work of those boroughs. Dr. Arthur J. O'Leary has been made assistant sanitary superintendent of the Bronx and Dr. John L. R. Barry will continue in that office in Queens. This is in accordance with the present policy of bringing the health department close to the people and practically giving each borough autonomy in its own locality.

Prevention of Diseases in War Industries.—The meeting of the New York Academy of Medicine to be held, March 7, under the auspices of the public health committee is to be devoted to a discussion of the prevention of diseases in war industry, and the subject will be considered under the following heads:

1. Extent and Importance of the Problem, by Dr. David Linn Edsall, Professor of Clinical Medicine, Harvard University.
2. New Poisons in War Industries (illustrated by lantern slides), by Dr. W. Gilman Thompson, Emeritus Professor of Medicine, Cornell University Medical College, New York City.
3. Methods of Prevention and Control, by Dr. Joseph W. Schereschewsky, Director, U. S. Public Health Laboratory, Pittsburgh, Pa.
4. Aid from the Medical Profession, by Dr. Alfred Stengel, Professor of Medicine, University of Pennsylvania.

Personal.—Dr. Frank E. Wilson, Brooklyn, former congressman, recently underwent an operation at the Post Graduate Hospital, Manhattan, and is reported to be making satisfactory progress toward recovery.——Dr. Isidore H. Goldberger has been appointed special lecturer on child hygiene in the school for oral hygiene at Columbia University.——Dr. Sylvester R. Leahy, resident alienist in charge of the psychopathic ward in the Kings County Hospital, Brooklyn, for three and one-half years, has resigned to enter private practice.——Dr. Geza Kremer has been appointed medical superintendent, Dr. Julius Dworetzky, resident physician and acting deputy medical superintendent, and Dr. Maurice G. Milan, resident physician of Sea View Hospital and Sanatorium, West New Brighton.——Dr. Stanley L. Wang has resigned as resident physician of the Sea View Hospital and Sanatorium.

PENNSYLVANIA

Personal.—Dr. Samuel McC. Hamill, Philadelphia, has been appointed chief to the division of Babies' Welfare, a new bureau created in the state department of health.——Dr. George T. MacLeod, Ardmore, is under treatment at the Bryn Mawr Hospital for a fracture of the arm and other injuries from a fall.

Resolutions for Increased Rank and National Licensure.—At a recent meeting, the board of directors of the Allegheny County Medical Society passed resolutions requesting army authorities and legislators to support legislation giving increased rank to medical officers and to exempt all honorably retired medical men from state board examinations.

Philadelphia

Personal.—Dr. Charles H. McDevitt has been appointed assistant medical inspector to the bureau of health.——Dr. S. Lewis Ziegler, former director of health and charities, has been elected president of the Philadelphia Alumni Association of the University of Pennsylvania Medical School. The other officers elected were Drs. Henry J. Off, John J. Robrecht and William S. Wray, vice presidents; Dr. Herbert B. Carpenter, treasurer; Drs. Stephen E. Tracy and W. Oakley Hermance, secretaries.

SOUTH CAROLINA

District Society Meeting.—At the annual meeting of the First District Medical Association held in Walterboro, February 6, Dr. John B. Johnston was elected president, and Dr. Judy, secretary, both of St. George. The next meeting will be held in Beaufort in July.

Meningitis.—February 3, orders were issued by the public health department of Columbia closing the public schools, churches, motion picture theaters and other public gathering places in an effort to prevent the spread of meningitis. Fifteen cases were reported in the city and suburbs, one new case having occurred on the date mentioned. The order did not affect Camp Jackson.

The Listing of Delinquents.—At a recent meeting of the Medical Society of the State of South Carolina, a resolution was adopted setting forth that in view of the enormous increase in the cost of living and the fact that physicians have made no increase in their regular fees, each member of the society be requested to hand to the officials "the names of those persons of means, who have refused to pay their doctor bills, so that a list may be made."

Personal.—Lieut. James A. Hayne, Columbia, state health officer and secretary of the state board of health, has been ordered to report to Camp Joseph H. Johnston, Jacksonville, Fla., for active service. The boards of health of the city, county and state, as well as the house of representatives, have wired to the War Department requesting that this order be rescinded on account of Lieut. Hayne's important work.——Dr. Edwin R. Wilson has been elected secretary of the Sumter County Tuberculosis Camp Commission.

TEXAS

Reciprocal Relations.—Official information received from the Texas State Board of Medical Examiners states that reciprocal relations have been established between Illinois and Texas.

Venereal Clinic Opens.—A clinic for the treatment of venereal diseases of men and women was opened last month at El Paso, in charge of Drs. John W. Tappan and B. V. Wood of the United States Public Health Service, Dr. Will Rogers, health officer of El Paso County, and Dr. Hugh S. White, health officer of El Paso.

Personal.—Fire in the office of Dr. John W. Kuykendall, Fort Worth, February 1, did damage to the extent of $700.——Dr. Peter H. Scardino, Houston, has asked the city council for indefinite leave of absence that he may go to Italy with Loyola Unit No. 102 of New Orleans.——Dr. Thomas B. Fisher, Dallas, has been appointed a member of the state board of health, succeeding Dr. William D. Littler, Fort Worth, resigned.

VIRGINIA

Personal.—Dr. James W. Reed, Ocean View, has been elected health officer of Norfolk County, and Dr. George M. Converse of the United States Public Health Service, director of health for the county.

State Health Officer's Salary Increased.—By a vote of 58 to 50, the house of delegates of Virginia adopted the senate bill authorizing an increase in the salary of the state health officer from $3,500 to $5,000 a year.

Additions to Hospital.—The directors of the Protestant Hospital of Norfolk announce that in order to meet the growing needs of the institution, a new ward for colored patients is to be built and an addition is to be made to the nurses' home.

Hospital Unit to Mobilize.—The Medical College of Virginia Base Hospital Unit, organized at the Medical College of Virginia, has been ordered to mobilize immediately for training at Camp Lee. The unit is commanded by Major Stuart McGuire, Richmond; the chief of the surgical staff is Capt. William L. People, M. R. C.; the chief of the medical staff is Capt. J. Garnett Nelson, M. R. C., and the adjutant, Capt. James H. Smith, M. R., all of Richmond.

WISCONSIN

Personal.—Dr. Edward M. Hunt, Aniwa, has been appointed local surgeon to the Minneapolis, St. Paul and Sioux Ste. Marie Railway at Goodman.——Dr. Thaddeus D. Smith, Neenah, who was wounded in a German air raid over a base hospital in France and incapacitated for further military service, has returned home.——Dr. John P. Koehler has been appointed deputy health commissioner of Milwaukee.——Dr. William F. Whyte, Madison, has been reappointed a member of the state board of health.——Dr. John A. Froehlich, Princeton, has accepted an appointment to the staff of the Mayo Hospital, Rochester, Minn.——Dr. George C. Ruhland has been elected president, Drs. George A. Harlow and Philip P. Rogers have been made vice presidents, and Dr. John Van de Erve, Wauwatosa, has been elected secretary of the Milwaukee Social Hygiene Society.——Dr. Ladislaus L. Adamkiewicz, Milwaukee, assistant surgeon, U. S. Navy, who was rescued when the United State destroyer *Jacob Jones* was torpedoed, is now on the medical staff of a base hospital in Scotland.

CANADA

Standard for Flour.—On and after January 28, one barrel of flour must be made from 265 pounds of wheat, the amount of grain formerly used being 300 pounds. There is now only one standard of flour, which is made from a 74 per cent. abstraction. This, it is expected, will save 35 pounds of flour in each 300.

Standardizing Medical Board.—Lieut.-Col. Harry H. Alger, Stirling, Ont., who went overseas as medical officer of the Eightieth Battalion, after several months' service at the front, has been sent to a base hospital for instruction, and will go from there to England to standardize the medical board work, beginning at the base and carrying on the work through England, and thence to Canada.

Personal.—Major George R. Cruickshank, head of the standing military medical board at Windsor, Ont., has, at his own request, been retired from active participation in military affairs.——Former Comptroller Dr. Robert W. Shaw, London, Ont., has been appointed a commissioner of the London Railway Commission.——Dr. Walter S. Downham, London, Ont., has been appointed a medical sanitary inspector of that city.——Col. Adam T. Shillington, Ottawa, has returned from overseas.——Capt. David E. Staunton Wishart, Toronto, on duty with the British army in Palestine, son of Dr. David J. Gibbs Wishart, was recently mentioned, in despatches by General Allenby, for gallant conduct and distinguished service.——Capt. Albert E. Sutton, Bethany, Ont., who was awarded the military cross recently for distinguished services, is in Toronto.

Canadian Military Hospital Commission.—The Dominion government has created a new department under a responsible minister of the crown. Senator Sir James Lougheed, who has been head of the Military Hospitals Commission since its inception, will be in charge of the new department and will have full cabinet rank. The name of the department is to be the Soldiers Civil Reestablishment Department. The Military Hospitals Commission with its staff is to be continued under the name of the Invalided Soldiers Commission. The new department and the Invalided Soldiers Commission will work in close cooperation with the various provincial governments. The medical end of the work is to be under the control of the Canadian Army Medical Corps.

Montreal Board of Health.—As the civic government of Montreal for some time past has not shown efficient results, a municipal survey of the various departments has recently been made by an expert. Dealing with the board of health, the report states that that body, as at present constituted, is performing no function of value. The board has met only five times since 1911. It, therefore, did not meet the needs of a board of health, as it acted in an advisory capacity to the medical officer of health. The report goes on to recommend that the present board of health be eliminated and the by-law creating it be annulled. It commends the efficiency of the present medical officer of health, Dr. Seraphin Boucher. It recommends that he be permitted to select his own board of health from among those interested in public health work, and that such board act in an advisory capacity to him. Another important recommendation calls for the appointment of an assistant medical officer of health. The remainder of the report deals with the internal administration of the health department.

GENERAL

Bequests and Donations.—The following bequests and donations have recently been announced:

United Hospital Fund of New York City, $31,331, from the bankers and brokers' auxiliary.

Samaritan Hospital, Philadelphia, $1,000 by the will of William G. Ellis.

Federation of Jewish Charities of Philadelphia, $3,000, ultimately, to be received from the estate of Raphael Golbacher.

Mount Sinai Hospital, Hebrew Orphan Home, Sanitarium, Hebrew Free Schools and three other nonmedical organizations, $1,000 each by the will of Jacob Uditski.

Quincy, Mass., City Hospital, $2,000 by the will of Dr. John A. Gordon, Quincy.

St. Vincent's Infant and Maternity Home, Chicago, $3,000; Little Sisters of the Poor, $2,500, and Guardian Angel German Catholic Orphan Asylum, Chicago; Home for Jewish Orphans, each $1,000, by the will of Martin T. Corby.

College of Physicians and Surgeons in the city of New York, a gift of $68,000 to provide for future medical students.

Banquet to Dr. Stephen Smith.—A banquet in honor of the ninety-fifth birthday of Dr. Stephen Smith, New York, the "Grand Old Man" of American medicine, was given at the Battle Creek (Mich.) Sanitarium, February 19. Dr. Smith gave a most interesting account of the changes he had witnessed in the methods of his profession. Other speakers were Dr. William A. Evans, Chicago, president of the American Public Health Association; Dr. Henry B. Baker, Ypsilanti, for many years secretary of the Michigan State Board of Health; Col. Cosam J. Bartlett, M. C., U. S. Army, and Major Ernest E. Irons, M. R. C., U. S. Army. About 100 medical officers from Camp Custer were present.

Meeting of Throat, Nose and Ear Specialists.—The midwinter annual meeting of the middle section of the American Laryngological, Rhinological and Otological Society was held at Indianapolis, February 22.

FOREIGN

Deaths in the Profession Abroad.—R. Malatesta, killed by aeroplane bomb while tending the wounded in a hospital raided by enemy aeroplanes, docent of surgical pathology at the University of Padua, aged 39.——The *Policlinico* mentions the death at Berlin from typhus of A. Pappenheim, editor of the *Folia haematologica*.——L. Viviani, killed by an air bomb while operating on a wounded soldier at Castelfranco, aged 40.——E. De Ambris of Padua, a criminologist.——G. Gandolfi, chief of the medical department of the army in the Genoa district.——V. Fazzi, member of parliament and surgeon at Lecce, Italy.

The Guatemala Earthquake.—Relief supplies valued at $110,000 purchased by the American Red Cross from government sources in the Canal Zone, have reached Guatemala City, January 19. Dr. Carlos F. Secord, for twenty years a medical missionary and physician in Guatemala, writes that the United States Marines reached Guatemala City a day after the second earthquake, January 3.

PARIS LETTER

Paris, Jan. 31, 1918.

Death of Gaucher

Dr Ernest Gaucher is dead at the age of 64 years. He was clinical professor of diseases of the skin and syphilis in the Paris Faculté de medecine, physician to the hospital Saint Louis, and physician in chief of the military hospital at Villemin. He was born at Chamfleury, studied medicine in Paris, and was a hospital intern in 1877; technician in histology in 1880; chief of the laboratory of the Charité in 1885; physician to the hospitals in 1886, and associate professor in 1892. In 1902 he was appointed professor of skin diseases and syphilis, succeeding Professor Fournier. Gaucher had been a member of the Academy of Medicine since 1910, was president of the Association générale de médecins de France, and presided over the section on medical sciences at the last congress of the French Association for the advancement of science, in 1908. Among his numerous works may be cited those on primary epithelioma of the spleen, the treatment of diphtheria, chronic intoxication by nitrogenous extractives, and the diatheses. His lectures on the diseases of the skin placed him among the notables in medicine, and helped to maintain the prestige of the French school of dermatology at the hospital Saint Louis. He published also the "Theory and Practice of Diseases of the Skin," 1885; "Epitome of Syphilography" and "Lectures on Diseases of the Skin," 1895. He was also a collaborator on the "Treatise of Medicine and Therapeutics" by Brouardel-Gilbert, and on the "Treatise on General Pathology" by Bouchard (Semeiology of the skin).

Etiology of Trench Fever

Drs. Couvy and Dujarric de la Rivière recently communicated to the Society of Biology the results of their researches on the etiology of trench fever. It is shown that the condition known as trench fever is a well established clinical entity, and that it is caused by a spirochete, presenting itself in two forms, a short form found in the blood, and a long form found in the organs of infected animals. The guinea-pig can be inoculated with the disease by injecting the blood of a patient. The blood should be withdrawn during a period of fever. The animal presents a temperature curve comparable with that of the human suffering from trench fever. In order to obtain the spirochetes, the guinea-pig should be killed at the height of the fever curve, for death occurs among these animals in only about one third of the cases. The pathogenicity and the immune reactions differentiate this spirochete from the spirochete of icterohemorrhagic fever.

Stretcher Bearers No Longer Attached to Combatant Units

The *Journal officiel* has published a decree to the effect that stretcher bearers are no longer attached to combatant units, but that they now are *unités sanitaires de première ligne*, that is, they have been transferred from the combatant to the medical department of the army. The members of the groups of stretcher bearers are and remain neutral according to the international conventions in vogue.

Reorganization of the Invalides

Following a visit made on January 1 to the Invalides, the premier, M. Clemenceau, has decided to reorganize the Invalides at once. This is the famous old soldiers' home, with the tomb of Napoleon, at Paris. After consultation with M. Justin Godart, under secretary of state for the army medical department, he submitted to the president of the Republic an outline for a decree which will soon be signed. The decree provides: I. The Invalides shall receive and treat within the limits of its budget permanently as pensioners members of all grades of the army and navy who cannot receive at home the attention and care they need. It will also receive temporarily discharged soldiers requiring intervention of a special nature. Also, provisionally, the helplessly crippled requiring further treatment and aid for the usual acts of life. II. The Invalides shall be in charge of the War Department, and will account to the under secretary of this department. It will be wholly independent of all other establishments, especially of the museum of the army. III. The establishment shall be subject to the rules laid down for military hospitals. It is under the orders of a *médecin-chef.* The rights conferred on the director of service by the regulations of the Service de Santé are delegated to the director of the Service de Santé of the military government of Paris. IV. The establishment occupies at the Hôtel des Invalides the ensemble of the buildings ordinarily comprising the infirmary of the Invalides; if the necessity for extension arises, annexes can be organized outside of Paris.

Association News

THE CHICAGO SESSION

Advisory Committee on Scientific Exhibit

In order to secure desirable material from various sources for the Scientific Exhibit at the coming meeting, an Advisory Committee on Scientific Exhibit has been appointed consisting of Dr. Harlow Brooks, New York; Dr. A. S. Warthin, Ann Arbor, Mich.; Dr. George L. Dock, St. Louis; Dr. L. B. Wilson, Rochester, Minn.; Dr. E. R. LeCount, Chicago; Dr. Oskar Klotz, Pittsburgh; Dr. F. P. Gay, Berkeley, Calif.; Dr. C. C. Bass, New Orleans; Dr. W. M. L. Coplin, Philadelphia; Dr. Joseph C. Bloodgood, Baltimore, and Dr. Walter B. Cannon, Boston.

The Scientific Exhibit will occupy the mezzanine of the Hotel Sherman. This will also be the general headquarters of the Chicago Session. The available space seems ample but in order to arrange the space to the best advantage it is desirable that the Director of the Scientific Exhibit know early what to expect. Applications should be made at once. Assignment of space will be made Tuesday, April 2, 1918, and all applications must be received before that date.

Those desiring to exhibit work may secure application blanks and further details by addressing Dr. George H. Weaver, Director of Scientific Exhibit, 637 South Wood Street, Chicago.

Marriages

Lieut. Lester Joerg Palmer, M. R. C., U. S. Army, Chicago, on duty at Camp Grant, Rockford, Ill., to Miss Mercedes Blackledge of Caney, Kan., at Rockford, February 3.

Capt. Edward Charles Ludwig, M. R. C., U. S. Army, on duty at Camp Hancock, Augusta, Ga., to Miss Elizabeth T. Goldsbury, both of Columbus, Ohio, February 4.

Lieut. Walter Julius Mellies, M. R. C., U. S. Army, on duty at Camp Funston, Kan., to Miss Jeanette Alexander, both of St. Louis, at Manhattan, Kan., February 2.

Passed Asst. Surg. Samuel Westray Battle, Lieutenant, U. S. Navy (retired), to Mrs. Vinton Liddell, both of Asheville, N. C., in New York City, February 7.

Asst. Surg. Gilbert William Haigh, Lieutenant, U. S. N. R. F., on duty at Boston Navy Yard, to Miss Ruth Dana, both of Worcester, Mass., December 1.

Lieut. Imas Pryor Rice, M. R. C., U. S. Army, on duty at Camp Grant, Rockford, Ill., to Miss Emma Edlund, both of Chicago, February 3.

Frederick Windel Chapin, M.D., New York City and Wilton, Conn., to Miss Ellen Childe Emerson of Pittsfield, Mass., February 14.

Lieut. Leroy Henry Smith, M. R. C., U. S. Army, to Miss Frances M. Lougee, both of Winterport, Me., at Shortville, N. Y., February 12.

Lieut. Irl Edwin Hempstid, M. R. C., U. S. Army, Burrton, Kan., to Miss Margaret Stewart of Hutchinson, Kan., January 2.

James Wood Jordan, M.D., Ashland, Va., to Miss Christine Churchill Cooke of Richmond, Va., February 9.

Earl R. Leonard, M.D., Benkelmen, Neb., to Miss Thelma L. Nicholl of Auburn, Neb., February 6.

Samuel H. Heller, M.D., Lancaster, Pa., to Miss Pauline G. Gilbert of Philadelphia, recently.

Arthur Ellis Schiller, M.D., Detroit, to Miss Rena Raffman of Chicago, February 19.

Deaths

Samuel Gibson Dixon, M.D., president of the Medical Society of the State of Pennsylvania, and commissioner of the state department of health; aged 66; died in the University of Pennsylvania Hospital, February 26, from anemia. Dr. Dixon, who was descended from a long line of Quaker ancestors, was born in Philadelphia, March 23, 1851. He studied law and was admitted to the bar in 1877, and was given the degree of M.D., with honors, by the University of Pennsylvania in 1886. Two years later he was made professor of hygiene, and a year thereafter professor of sanitary engineering and dean of the auxiliary department of medicine in his alma mater. Dr. Dixon was always a research worker, and made special fame in the department of bacteriology. He was the first to describe, in 1886, the branched form of the tubercle bacillus, and preceded Koch by six months, in the production of immunity to the tubercle bacillus. In 1890, Dr. Dixon became professor of bacteriology and microscopic technology in the Philadelphia Academy of Sciences, was made curator in 1891, and has been executive curator since 1892 and president of the organization since 1896. He was a member of the board of public education of Philadelphia from 1888 to 1894, and during this time was chairman of the committee of hygiene. He was also a trustee of the University of Pennsylvania, first vice president of the Ludwick Institute, vice president of the Zoological Society of Philadelphia; a member of the board of managers of the Grandom Institution; a Fellow of the American Medical Association; and for many years was a member, in 1916 elected president of the Medical Society of the State of Pennsylvania and inducted into office in 1917.

Dr. Dixon was a prolific writer on bacteriologic and hygienic subjects. To his work as commissioner of health for the commonwealth of Pennsylvania he brought splendid equipment, ideal foundation training and admirable executive ability. Among the notable achievements of the department of health since Dr. Dixon assumed charge are the collection of complete birth records; the collection of full data regarding deaths; the compilation of morbidity statistics; the filing classification of all vital statistics; the working out of the details of rural quarantine; the sanitary inspection of dairies; the evolution of a system of inspection of pupils in the public schools, both interurban and rural; the organization of a state laboratory; the organization of a division of sanitary engineering; the establishment of three large tuberculosis sanatoriums, and a state-wide system of dispensaries for tuberculosis, and a successful propaganda of educational publicity. In the accomplishment of all these results, Dr. Dixon was always the leader and director. He had been ill for many months, but whether in hospital in Philadelphia, or in the State Sanatorium, controlled the sanitary administration of the state.

Dr. Dixon was a sanitarian of distinguished ability and efficiency and as an administrative officer was unsurpassed. The reduction in mortality and morbidity in the state during Dr. Dixon's administration will be his lasting monument.

Major Charles Smith Turnbull, M.D., M. C., N. G. Pa., Philadelphia; University of Pennsylvania, Philadelphia, 1871; aged 70; a Fellow of the American Medical Association and American Academy of Medicine, and a member of the Association of Military Surgeons of the United States; a specialist on diseases of the eye; a member of the teaching staff of the New York Ophthalmic and Aural Institute for two years, and of Jefferson Medical College for eight years; chief of the aural department of Jefferson Medical College for ten years; oculist and aurist to the German Hospital, Philadelphia, for more than thirty-five years; to the Odd Fellows' Home, to the Pennsylvania Institute for the Deaf and Dumb, and to the Home for Teaching Deaf Children to Speak; ophthalmic and aural surgeon to the Jewish, Howard and St. Christopher's hospitals, and to the Home for Incurables, Philadelphia; a prolific contributor to the literature of his specialty; major surgeon of the First Infantry, N. G., Pa., since 1900; brigade surgeon during the "Pittsburgh and Round House Campaign"; died at his home, February 21.

Thomas Jefferson Mays, M.D., Philadelphia; Jefferson Medical College, 1868; aged 72; a Fellow of the American Medical Association; a member of the American Climatological Association, American Neurological Association and Philadelphia College of Physicians; a specialist on diseases of the heart and lungs, with special reference to tuberculosis; from 1888 to 1902 professor of diseases of the chest in the

Philadelphia Polyclinic Hospital; one of the organizers of Rush Hospital for Consumption in 1890, and visiting physician to the institution until 1905; organizer of the Philadelphia Clinic for Home Treatment of Consumption, and director thereof until his death; died at his home, February 14, from cerebral hemorrhage.

Robert Lee Payne, M.D., Norfolk, Va.; Jefferson Medical College, 1881; aged 60; formerly president of the Medical Society of the State of North Carolina, and president of the Seaboard Medical Association in 1907; superintendent of health of Davidson County, N. C., for ten years; surgeon to the Southern Railway and Chesapeake and Clyde Steamship Company; chief surgeon of the Norfolk Southern Railroad; director and medical director of the Jamestown Exposition Company; gynecologist to St. Vincent's Hospital, Norfolk; a director of the Norfolk National Bank; died in a hotel in Durham, N. C., February 8, from heart disease.

Thomas Coke Biddle, M.D., Topeka, Kan.; Rush Medical College, 1881; aged 60; a member of the Kansas Medical Society; clinical professor of mental diseases in Kansas Medical College, Topeka; from 1895 to 1898 superintendent of the Osawatomie State Hospital; superintendent of the Topeka State Hospital for nineteen years; surgeon of the Twenty-First Kansas Volunteer Infantry during the war with Spain, with service in Porto Rico; died at his home in the Topeka State Hospital, February 16, from pneumonia.

Oscar G. B. McMullan, M.D., Elizabeth City, N. C.; University of Virginia, Charlottesville, 1880; aged 61; a Fellow of the American Medical Association; organizer in 1885 of the Elizabeth City Cotton Mills and president for five years; organizer in 1889 and since president of the Citizens' Bank, Elizabeth City; director of the Elizabeth City and Norfolk Telephone and Telegraph Company; died at his home, February 13, from pneumonia.

Capt. Odos Arville Hopkins, M.D., M. R. C., U. S. Army, Middlefield, Ohio; Kentucky School of Medicine, Louisville, 1893; Medical College of Ohio, Cincinnati, 1895; aged 46; a Fellow of the American Medical Association; on duty at Camp Beauregard, La., with the One Hundred and Fifty-Fifth Ambulance Corps, One Hundred and Fourteenth Sanitary Train; died in Camp Beauregard, January 15, from spinal meningitis.

Samuel Gibson Dixon, M.D., 1851-1918

Francis Moore Clarke, M.D., Middletown, N. C.; College of Physicians and Surgeons, Baltimore, 1893; aged 47; a Fellow of the American Medical Association; formerly acting assistant surgeon, U. S. P. H. S., at Beaufort, N. C., and superintendent of health of Carteret County; died in a hospital in Washington, N. C., February 3, from intestinal obstruction following an operation to relieve intestinal obstruction.

George Bradfoot Lawrason, M.D., Shreveport, La.; Tulane University, New Orleans, 1883; aged 63; a Fellow of the American Medical Association; formerly contract surgeon, U. S. Army, and later surgeon of volunteers during the war with Spain, with service in the Philippine Islands; coroner of Orleans Parish from 1893 to 1896; died in the Touro Infirmary, New Orleans, February 3, after a surgical operation.

Captain Frank Shumway Pratt, M.D., M. R. C., U. S. Army, North Ben, Ore.; University of Oregon, Portland, 1908; aged 51; formerly county physician and health officer of Skamania County, Wash., and health officer of Stevenson; local surgeon of the Spokane, Portland and Seattle Railway Company; on duty at Fort D. A. Russell, Wyo.; died at that post, February 12.

John Jay Marvin, M.D., Cincinnati; Pulte Medical College, Cincinnati, 1874; aged 83; formerly demonstrator of anatomy in his alma mater; twice mayor of the village of Pleasant Ridge, and founder of the Pleasant Ridge Library; died at the home of his son in that place, February 5, from the effects of a fracture of the ribs.

Howard Burhans Besemer, M.D., Ithaca, N. Y.; New York University, New York, 1891; Cleveland Homeopathic Medical College, 1892, aged 48; a Fellow of the American Medical Association; and once president of the Tompkins County Medical Society; health commissioner of Ithaca for eight years, died at his home, February 8, from acute gastritis.

Ambrose John Gallison, M.D., Franklin, Mass.; Dartmouth Medical School, Hanover, N. H., 1888; aged 61; a Fellow of the American Medical Association; once president and orator, and for fifteen years secretary of the Thurber Medical Association of Milford, Mass.; died at his home, February 13, from heart disease.

Lindus LaRell Riggs, M.D., Maquoketa, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1904; Jefferson Medical College, 1905; aged 49; a Fellow of the American Medical Association; died at his home, February 7, from heart disease.

George Jacob Smith, M.D., Niles Ohio; University of Pittsburgh, 1899; aged 42; a Fellow of the American Medical Association; while driving his automobile over a grade crossing at Niles, February 5, was struck by an Erie train, and instantly killed.

Lieut. Henry Edward Hungerford, M.D., M. R. C., U. S. Army, Waterbury, Conn.; Yale University, New Haven, Conn., 1898; aged 45; a Fellow of the American Medical Association; died at Camp Greenleaf, Fort Oglethorpe, Ga., February 1, from acute dilatation of the heart.

Edwin Robinson Dean, M.D., South Bend, Ind.; Jefferson Medical College, 1890; aged 52; a member of the Indiana State Medical Association; medical director of the Conservative Life Insurance Company; died at his home, February 2, from heart disease.

William Webster Ensey, M.D., Dayton, Ohio; New York Homeopathic Medical College, New York, 1892; aged 48; a member of the staff of the Miami Valley Hospital, Dayton; died in that institution, February 4, a few hours after a surgical operation.

Olive B. Metcalf, M.D., Oakland, Calif.; California Medical College, Eclectic, San Francisco, 1883; aged 100; died at the home of her adopted daughter in Oakland, February 18.

Rufus A. DuMars, M.D., Peoria, Ill.; Louisville Medical College, 1876; University of Pennsylvania, Philadelphia, 1877; aged 68; a member of the Illinois State Medical Society; died in St. Francis' Hospital, Peoria, February 1, from cholelithiasis.

Joseph B. Sappington, M.D., Austin, Texas; University of Nashville, Tenn., 1860; aged 78; formerly a member of the State Medical Association of Texas; surgeon in the Confederate Army during the Civil War; died at his home, January 27.

Theodore Jacobs, M.D., Morristown, Pa.; University of Pennsylvania, Philadelphia, 1860; aged 82; surgeon in the U. S. Navy during the Civil War, and on duty with the gunboat fleet on the Mississippi; died at his home, February 7.

William Parish Wentworth, M.D., Pittsfield, Mass.; New York Homeopathic Medical College, New York, 1886; aged 57; at one time a member of the faculty of his alma mater; died in the Homeopathic Hospital, Boston, February 1.

Joseph Raoul Pepin, M.D., Manchester, N. H.; Laval University, Montreal and Quebec, 1895; aged 45; a member of the Arctic Expedition commanded by Capt. Bernier of Canada in 1896; died at his home, January 31.

Foster Bradley Crutcher, M.D., San Antonio Texas; Vanderbilt University, Nashville, Tenn., 1887; aged 57; formerly a member of the Tennessee State Medical Association; died at his home, Nov. 25, 1917, from septicemia.

Devotie Dennis Jones, M.D., Birmingham, Ala.; University of Maryland, Baltimore, 1872; aged 73; a member of the Medical Association of the State of Alabama; died at his home, Dec. 23, 1917, from pleuropneumonia.

Daniel Karsner, M.D., Philadelphia; Jefferson Medical College, 1865; Hahnemann Medical College, 1887; aged 86; assistant surgeon of United States Volunteers during the Civil War; died at his home, February 8.

William M. Scott, M.D., Centerville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 77; surgeon of the Thirty-Third Iowa Volunteer Infantry during the Civil War; died at his home, February 2.

Willis Hamilton, M.D., Richmond, Mo.; Jefferson Medical College, 1889; aged 87; a pioneer practitioner of Missouri; died, February 1, in a hospital in St. Joseph, Mo., following a fall in which he fractured his right hip.

Clarence A. Hastings, M.D., Malone, N. Y.; University of Vermont, Burlington, 1889; aged 55; a member of the Medical Society of the State of New York; died at his home, Dec. 23, 1917, from cerebral hemorrhage.

Homer Warren Thompson, M.D., Salem, Ohio; Pulte Medical College, Cincinnati, 1885; aged 58; a specialist on diseases of the eye; and a well-known aeronaut; died at his home, February 8, from angina pectoris.

Silas H. Van Doren, M.D., Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; aged 66; for many years a practitioner of Elgin, Ill.; died at his home, February 8, from cerebral hemorrhage.

Thomas Henry Northridge, M.D., Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1876; aged 67; a member of the Medical Society of the State of New York; died at his home, February 10, from pneumonia.

William Chauncey Carter, M.D., Fredericksburg, Va.; Medical College of Virginia, Richmond, 1878; aged 79; a Confederate veteran; died in the Mary Washington Hospital, Fredericksburg, Va., January 29.

Frank Post Butler, M.D., Whitten, Iowa; State University of Iowa, Iowa City, 1887; aged 56; a Fellow of the American Medical Association; died in a hospital at Marshalltown, Iowa, about February 2.

Edwin DeWitt Peugh, M.D., Brookfield, Mo.; Kansas City, Mo., Medical College, 1895; aged 44; a member of the Missouri State Medical Association; died at his home, February 2.

George W. Crosby, M.D., Atlantic City, N. J.; New York Homeopathic Medical College, New York City, 1878; aged 66; died at his home, February 4, from pneumonia.

William T. Irvine, M.D., Jonesville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1901; aged 62; died in his home, February 5, from septicemia.

Zachariah Raphael Morgan, M.D., Mechanicsville, Md.; Georgetown University, Washington, D. C., 1880; aged 72; died at his home, February 5.

Robert A. Childers, M.D., Floydada, Texas; Vanderbilt University, Nashville, Tenn., 1899; aged 40; died in Albuquerque, N. M., February 3.

John W. Johnson, M.D., Winchester, Ky.; University of Louisville, Ky., 1861; aged 87; died at his home, February 3, from cerebral hemorrhage.

Frederick Charles Roth, M.D., College of Physicians and Surgeons in the City of New York, 1891; aged 49; died at his home, February 3.

Susan Ema Pullin, M.D., Los Angeles; University of Michigan, Homeopathic Medical School, 1894; died at her home, about February 2.

William Henry Hamilton, M.D., Fort William, Ont.; Trinity Medical College, Toronto, 1884; died in Florida, February 3.

A. Byron Tapscott, M.D., Carlisle, Ark.; Missouri Medical College, 1878; aged 51; died at his home, January 30, from uremia.

William A. Seeley, Oelwein, Iowa (license, years of practice, Iowa, 1886); aged 70; died at his home, about February 3.

George Rodier, Natick, R. I. (license, Rhode Island, 1900); aged 43; died at his home, January 29.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Critized

[Foreword.—The article that follows is the seventh[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and prescribed indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[Article VII]

SHOTGUN NOSTRUMS

By S. O. Lapius, M.D.

Formerly it was customary to prescribe mixtures of many drugs on the assumption that if one of the ingredients missed the mark another might be expected to hit it, just as a poor marksman is more likely to hit a target at short range with a blunderbuss than with a high powered rifle. Increased precision in every branch of science has become the outstanding feature of civilization. The soldier today must shoot straight with a rifle that sends a single ball. There is none of the disposition to rely on chance as when the blunderbuss was used. A capable physician directs his drug straight at the seat of the trouble, and we now have many drugs that can be depended on to exert definite actions. The complex mixture is just as preposterous in modern therapeutics as the blunderbuss would be on a modern battlefield.

Every drug exerts undesired side actions, and it is the aim of the modern physician to try to select the one which will have a maximum of therapeutic with a minimum of undesired actions. When a complex mixture is employed it is obvious that only the best is utilized whereas all the undesired side actions come into play. We do not pretend that even the best studied drug has not much to be learned about it, but the nostrum maker who exploits a complex mixture either knows practically nothing of the side actions that it will exert or, if he knows, he conceals that knowledge. He knows that massive doses of hydrated chloral combined with various narcotics can be relied on to cause unconsciousness in nearly all cases, but he prefers to speak of this as a hypnotic action. This is plain gambling with human life. When the patient dies it is difficult to prove that death was caused by the mixture alone.

The Council on Pharmacy and Chemistry has expended a great deal of time and energy in combating the "shotgun" nostrum evil. It is easy to understand the disadvantages of such mixtures but it is not so easy to demonstrate the misleading character of the claims made, with an entire disregard of the truth, for these mixtures. No one believes that a pot of gold lies at the end of the rainbow, but no one has actually gone there to see for himself.

BROMIDIA

There are many types of "shotgun" nostrum. Some are dangerous, as in the case of "Bromidia"; some are preposterous, therapeutic monstrosities which excite the contempt of educated physicians, as in the case of "Tongaline"; some are merely useless mixtures of well known drugs, sold under grotesquely exaggerated claims, as in the case of "Peacock's Bromides."

---

[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918; "Fellows' Syrup and Other Preparations of the Hypophosphites," Feb. 16, 1918.

Various formulas have been given for Bromidia. The manufacturers appear to be more cautious under those circumstances where falsehood might lead them into collision with the federal authorities, than when giving reign to fancy and considering only the best means of winning the favor of the physician. It is said to consist of hydrated chloral, potassium bromid, Indian cannabis, and hyoscyamus. It is impossible to determine from the published formulas just how much hydrated chloral and potassium bromid it contains, but it is probable that there are about fifteen grains of each of these two drugs to the fluid drachm, and variable amounts of Indian cannabis and a small amount of either extract or tincture of hyoscyamus.

This much is certain: Bromidia is a distinctly dangerous mixture for indiscriminate use. The claim of the manufacturers, implied, rather than directly stated, that it is superior to an extemporaneously prepared mixture of those drugs is especially reprehensible because it tends to create the impression that the nostrum is safer in effective doses, conducing to a false sense of security on the part of those who are deluded into prescribing it in larger doses than they would a mixture of the same drugs prepared extemporaneously.

A report of the Council on Pharmacy and Chemistry published in The Journal, May 16, 1914, mentions three instances in which death is reported to have followed the use of Bromidia. The manufacturers of Bromidia have no magic power to render hydrated chloral harmless while retaining its hypnotic action. It depresses the central nervous system, and it is nothing less than monstrous for any one to pretend to rob this drug of its dangerous properties while retaining its hypnotic effects. If the patient *requires* a hypnotic, the physician should choose that one which his judgment and experience dictate as the best for that particular patient. If he needs hydrated chloral, the physician should prescribe exactly as much as he believes the patient needs. If the effect is slightly greater or slightly less than anticipated, no harm is done and the physician has gained experience that will be valuable in future prescribing. *If* Bromidia is prescribed and unexpected effects are induced it is impossible to know whether these were due to the hydrated chloral or to one of the other narcotics or to a synergistic action, and there is nothing to guide in the further use of the nostrum, for mixtures of narcotics commonly have much less uniformity of action than a single drug.

The irritant action of hydrated chloral on the stomach can be avoided by the use of bland fluids or dilute solutions. The following serves as an example of the way *in* which it may be prescribed conveniently:

Hydrated chloral	grs. xl	2.6 gms.
Syrup of orange peel		
Water, of each	fl.℥ j	30.0 c.c.

A tablespoonful (15.0 c.c.) of this mixture, containing 10 grains (0.65 gm.) of hydrated chloral, will often induce sleep in the absence of severe pain or serious disturbance, and seldom does this dose have to be repeated more than once in such simple cases. Hydrated chloral is often used in somewhat smaller doses in combination with potassium bromid, which may be prescribed in a mixture such as the following:

Hydrated chloral	grs. xx	1.3 gms.
Potassium bromid	grs. lx	3.9 gms.
Syrup of orange peel		
Water, of each	fl.℥ j	30.0 c.c.

In producing sleep when severe pain *is* absent this is as effective as the preceding, in similar doses. The use of repeated doses of hydrated chloral either *in* such a mixture as this, or in the form of Bromidia or other nostrum when sleeplessness is due to severe pain is *highly* dangerous. It should be remembered that while hydrated chloral is an effective hypnotic in case of simple sleeplessness, it is not actively analgesic except in distinctly dangerous doses. Bromidia in repeated doses will *induce* sleep even in the presence of pain, of course, but any active *narcotic* does that, and it is correspondingly dangerous. Small doses of morphin given alone are preferable when sleeplessness is due to severe pain.

TONGALINE

"Tongaline" is an example of the type of "shot-gun" nostrum that would be merely ludicrous if we could look on anything that degrades therapeutics so lightly. A report was made to the Council on Pharmacy and Chemistry, and published in The Journal, July 17, 1915, p. 269, and in this report it is stated that Tongaline is said to consist of tonga, cimicifuga racemosa, sodium salicylate, colchicum, and pilocarpin. Whether the formula was cut short just there because the office boy ran out of breath at that point, or because the discoverers of this wonderful combination had not heard of the eminently potent substances that the witches added to their cauldron, we can leave to the reader's imagination, for it is manifestly impossible to present an orderly discussion of the pharmacology and therapeutics of such a preposterous jumble of drugs.

PEACOCK'S BROMIDES

"Peacock's Bromides" belongs to a slightly different class. It is said to consist of the bromids of sodium, potassium, ammonium, calcium and lithium. In the absence of a logical explanation of the pretended superiority of this mixture over one that is made extemporaneously the exploiters seem to have been driven to the necessity of pretending that its freedom from contaminating chlorids explains its claimed advantages over mixtures of the official or commercial bromids. The truth is that the chlorids are used as antidotes in bromid *poisoning.*

Disregard the claims made for Peacock's Bromides, and ask yourself the question whether you have ever actually seen any ill results following the use of the official bromids that you could reasonably attribute to contaminating chlorids. Furthermore, carefully consider the relative advantage of a single bromid (say the bromid of potassium, or bromid of sodium, if you prefer it), with the opportunity of observing its effects and adjusting the dose in accordance with the results of your experience, and a mixture such as Peacock's Bromides, the composition of which you do not know, and which the manufacturer can alter to suit his own convenience.

While it is true that the therapeutic art will not degenerate in its entirety merely because some physicians continue to use even the most fraudulent and worthless nostrums, yet, on the other hand, to the extent that a physician continues to be guided by the false teachings of nostrum venders who have no therapeutic training, he is plunged into therapeutic chaos.

Correspondence

THE CRITERIA OF THE WASSERMANN REACTION

To the Editor:—In my opinion, based on the study of syphilis from the histologic, bacteriologic and clinical points of view, the postmortem appearances, interpreted as being evidence of syphilis are the least valuable as proof and often actually misleading, contrary to the view expressed by Symmers and Darlington (Symmers, Douglaas, and Darlington, C. G.: The Value of the Wassermann Reaction, The Journal, Feb. 2, 1918, p. 279).

Syphilis is an anatomic disease, but the postmortem anatomic changes are often better regarded as the results of a disease, of a process which has come to an end before the death of the individual, rather than as the disease itself; hence the fallacy of correlating the results of a reaction, which necessarily depends on the active disease process, with terminal fibroid changes.

The Wassermann reaction presupposes that there are certain substances in one or both of two body fluids, the presence of which is determinable by that procedure.

A patient may have syphilis; but if the so-called Wassermann bodies are not present in the blood serum or spinal

Foster Bradley Crutcher, M.D., San Antonio Texas; Vanderbilt University, Nashville, Tenn., 1887; aged 57; formerly a member of the Tennessee State Medical Association; died at his home, Nov. 25, 1917, from septicemia.

Devotie Dennis Jones, M.D., Birmingham, Ala.; University of Maryland, Baltimore, 1872; aged 73; a member of the Medical Association of the State of Alabama; died at his home, Dec. 23, 1917, from pleuropneumonia.

Daniel Karsner, M.D., Philadelphia; Jefferson Medical College, 1865; Hahnemann Medical College, 1887; aged 86; assistant surgeon of United States Volunteers during the Civil War; died at his home, February 8.

William M. Scott, M.D., Centerville, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 77; surgeon of the Thirty-Third Iowa Volunteer Infantry during the Civil War; died at his home, February 2.

Willis Hamilton, M.D., Richmond, Mo.; Jefferson Medical College, 1889; aged 87; a pioneer practitioner of Missouri; died, February 1, in a hospital in St. Joseph, Mo., following a fall in which he fractured his right hip.

Clarence A. Hastings, M.D., Malone, N. Y.; University of Vermont, Burlington, 1889; aged 55; a member of the Medical Society of the State of New York; died at his home, Dec. 23, 1917, from cerebral hemorrhage.

Homer Warren Thompson, M.D., Salem, Ohio; Pulte Medical College, Cincinnati, 1885; aged 58; a specialist on diseases of the eye; and a well-known aeronaut; died at his home, February 8, from angina pectoris.

Silas H. Van Doren, M.D., Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; aged 66; for many years a practitioner of Elgin, Ill.; died at his home, February 8, from cerebral hemorrhage.

Thomas Henry Northridge, M.D., Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1876; aged 67; a member of the Medical Society of the State of New York; died at his home, February 10, from pneumonia.

William Chauncey Carter, M.D., Fredericksburg, Va.; Medical College of Virginia, Richmond, 1878; aged 79; a Confederate veteran; died in the Mary Washington Hospital, Fredericksburg, Va., January 29.

Frank Post Butler, M.D., Whitten, Iowa; State University of Iowa, Iowa City, 1887; aged 56; a Fellow of the American Medical Association; died in a hospital at Marshalltown, Iowa, about February 2.

Edwin DeWitt Peugh, M.D., Brookfield, Mo.; Kansas City, Mo., Medical College, 1895; aged 44; a member of the Missouri State Medical Association; died at his home, February 2.

George W. Crosby, M.D., Atlantic City, N. J.; New York Homeopathic Medical College, New York City, 1878; aged 66; died at his home, February 4, from pneumonia.

William T. Irvine, M.D., Jonesville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1901; aged 62; died in his home, February 5, from septicemia.

Zachariah Raphael Morgan, M.D., Mechanicsville, Md.; Georgetown University, Washington, D. C., 1880; aged 72; died at his home, February 5.

Robert A. Childers, M.D., Floydada, Texas; Vanderbilt University, Nashville, Tenn., 1899; aged 40; died in Albuquerque, N. M., February 3.

John W. Johnson, M.D., Winchester, Ky.; University of Louisville, Ky., 1861; aged 87; died at his home, February 3, from cerebral hemorrhage.

Frederick Charles Roth, M.D., College of Physicians and Surgeons in the City of New York, 1891; aged 49; died at his home, February 3.

Susan Ema Pullin, M.D., Los Angeles; University of Michigan, Homeopathic Medical School, 1894; died at her home, about February 2.

William Henry Hamilton, M.D., Fort William, Ont.; Trinity Medical College, Toronto, 1884; died in Florida, February 3.

A. Byron Tapscott, M.D., Carlisle, Ark.; Missouri Medical College, 1878; aged 51; died at his home, January 30, from uremia.

William A. Seeley, Oelwein, Iowa (license, years of practice, Iowa, 1886); aged 70; died at his home, about February 3.

George Rodier, Natick, R. I. (license, Rhode Island, 1900); aged 43; died at his home, January 29.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Critized

[Foreword.—The article that follows is the seventh[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and prescribed indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[*Article VII*]

SHOTGUN NOSTRUMS

By S. Q. Lapius, M.D.

Formerly it was customary to prescribe mixtures of many drugs on the assumption that if one of the ingredients missed the mark another might be expected to hit it, just as a poor marksman is more likely to hit a target at short range with a blunderbuss than with a high powered rifle. Increased precision in every branch of science has become the outstanding feature of civilization. The soldier today must shoot straight with a rifle that sends a single ball. There is none of the disposition to rely on chance as when the blunderbuss was used. A capable physician directs his drug straight at the seat of the trouble, and we now have many drugs that can be depended on to exert definite actions. The complex mixture is just as preposterous in modern therapeutics as the blunderbuss would be on a modern battlefield.

Every drug exerts undesired side actions, and it is the aim of the modern physician to try to select the one which will have a maximum of therapeutic with a minimum of undesired actions. When a complex mixture is employed it is obvious that only the best is utilized whereas all the undesired side actions come into play. We do not pretend that even the best studied drug has not much to be learned about it, but the nostrum maker who exploits a complex mixture either knows practically nothing of the side actions that it will exert or, if he knows, he conceals that knowledge. He knows that massive doses of hydrated chloral combined with various narcotics can be relied on to cause unconsciousness in nearly all cases, but he prefers to speak of this as a hypnotic action. This is plain gambling with human life. When the patient dies it is difficult to prove that death was caused by the mixture alone.

The Council on Pharmacy and Chemistry has expended a great deal of time and energy in combating the "shotgun" nostrum evil. It is easy to understand the disadvantages of such mixtures but it is not so easy to demonstrate the misleading character of the claims made, with an entire disregard of the truth, for these mixtures. No one believes that a pot of gold lies at the end of the rainbow, but no one has actually gone there to see for himself.

BROMIDIA

There are many types of "shotgun" nostrum. Some are dangerous, as in the case of "Bromidia"; some are preposterous, therapeutic monstrosities which excite the contempt

---

[1] The previous articles of the series are "Bell-ans," The Journal, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918; "Fellows' Syrup and Other Preparations of the Hypophosphites," Feb. 16, 1918.

Stokes in 1846 and previously observed by Adams in 1827. It is characterized by bradycardia and cerebral attacks, either syncope or pseudo-apoplectic, or convulsive attacks. In order to understand the pathology and the mechanism of the production of the Stokes-Adams syndrome, it is necessary to be thoroughly acquainted with the newer studies of the physiology and pathology of the heart and circulation as revealed by the newer instruments of precision, such as the polygraph, electrocardiograph, etc. It has been found by studying the pathology of Stokes-Adams disease, as well as by noting with instruments the contractions of different parts of the heart, that the bradycardia is really due to interruptions of the impulse passing from the auricle to the ventricle through the bundle of His, and it is generally believed that degeneration of the tissue in the bundle of His is the cause of Stokes-Adams disease. The auricles beat many times more often than the ventricles, and these contractions are not transmitted to the arterial system. On the other hand, cases have occurred in which no lesion of the heart could be found, although generally there is arterial sclerosis, especially of the coronary arteries and the arterial system of the brain. The previous history of the patient often discloses syphilis.

2. This condition in a patient might easily be overlooked if the examination did not include all of the various methods that may be applied to a study of heart disease.

3. The following literature may be consulted:

Lewis, Thomas: Mechanism of the Heartbeat, London, Shaw & Sons, 1911; New York, P. B. Hoeber & Co.; $7.
Lewis, Thomas: Clinical Disorders of the Heartbeat, $2.
Osborne, O. T.: Disturbances of the Heart, Chicago, American Medical Association, 75 cents.
Cabot, Richard C.: Differential Diagnosis, New York, William Wood & Co., 1915, $3.50.
Greene, Charles L.: Medical Diagnosis, Philadelphia, P. Blakiston's Son & Co., 1917, $10.

ACETYLSALICYLIC ACID (ASPIRIN)

To the Editor:—What injurious effect is to be feared from the administration of aspirin, either in too large a single dose or by too prolonged moderate dosage? What is the largest single medicinal dose considered safe, and is the American aspirin reliable?

Evan O'Neill Kane, M.D., Kane, Pa.

Answer.—In reference to untoward effects from acetylsalicylic acid (aspirin), it is stated in New and Nonofficial Remedies, 1917, p. 265: "The promiscuous use of acetylsalicylic acid (aspirin) by the laity, especially for the relief of headache, has frequently led to cases of rather severe poisoning, the chief symptoms being edema of the lips, tongue, eyelids, nose or of the entire face; also urticarial rashes, vertigo, nausea and sometimes cyanosis. Some persons are especially susceptible to acetylsalicylic acid and these symptoms are usually ascribed to an idiosyncrasy." The following is the dosage of acetylsalicylic acid given in New and Nonofficial Remedies: "From 0.3 to 1 gm. (5 to 15 grains), repeated once in three hours until symptoms of salicylism (ringing in the ears, etc.) are noted."

The following brands of acetylsalicylic acid (aspirin) have been found to comply with the standards of the Council on Pharmacy and Chemistry for acetylsalicylic acid, and were admitted to New and Nonofficial Remedies:

Acetylsalicylic Acid-M. C. W., Mallinckrodt Chemical Works, St. Louis.
Acetylsalicylic Acid-Merck, Merck & Co., New York.
Acetylsalicylic Acid-Milliken, John T. Milliken & Co., St. Louis.
Acetylsalicylic Acid-Monsanto, Monsanto Chemical Works, St. Louis.
Acetylsalicylic Acid-P. W. R., Powers-Weightman-Rosengarten Company, Philadelphia.
Acetylsalicylic Acid-Squibb, E. R. Squibb & Sons, New York.
Aspirin-L. and F., Lehn & Fink, New York.

PERMIT AND BOND FOR USING AND DISPENSING ALCOHOL

To the Editor:—I am in receipt of the enclosed communication, which I presume went to all physicians, and which I think is a carefully concealed misrepresentation of the facts intended to mislead physicians. In reading the attached, one is led to believe that no alcohol can be used by a physician in his office; but as I understand the law, he can use nonbeverage alcohol in his spirit lamp, etc., and is not required to take out this permit.

L. L. Lyman, M.D., Springfield, Ohio.

Answer.—The enclosure is a circular letter from a surety company offering to execute a bond for physicians who might purchase and use alcohol under the regulations prescribed in the war revenue measure. A complete discussion of the subject appeared in Queries and Minor Notes, The Journal, Jan. 19, 1918, p. 186.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska Juneau, March 5. Sec., Dr. L. P. Dawes.

Colorado Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut (R) New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H) New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

District of Columbia Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rochambeau, Washington.

Idaho Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

Illinois Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Maine Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

Missouri St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Mexico Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Pennsylvania July Examination

Mr. Nathan C. Schaefer, secretary of the Pennsylvania Bureau of Medical Education and Licensure, reports the practical and written examination held at Philadelphia and Pittsburgh, July 10-12, 1917. The examination covered 5 subjects. An average of 75 per cent. was required to pass. Of the 182 candidates examined, 175 passed and 7 failed. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Howard University	(1916)	1
Bennett Medical College	(1915)	1
Hahnemann M. Coll. and Hosp. of Chicago (1915) 1;	(1916)	1
College of P. and S., Baltimore (1913) 1;	(1915)	2
Eastern University	(1913)*	1
Johns Hopkins University (1914) 1; (1915) 1;	(1916)	3
Maryland Medical College	(1912)	1
University of Maryland	(1916)	2
Harvard University (1911) 1; (1915) 1;	(1916)	1
Fordham University	(1916)	1
Syracuse University	(1913)	1
University of Buffalo	(1916)	1
Leonard Medical School	(1903)	1
University of Cincinnati	(1916)	4
Western Reserve University	(1915)	1
Hahnemann Med. Coll. and Hosp. of Phila. (1915) 1;	(1916)	10
Jefferson Medical Coll. of Philadelphia (1912) 1; (1914) 1; (1915) 9; (1916) 34		
Medico-Chirurgical College of Philadelphia (1914) 1; (1915) 9; (1916) 28.		
Temple University (1914) 1; (1916) 8;	(1917)	1
University of Pennsylvania (1913) 1; (1915) 3;	(1916)	10
University of Pittsburgh	(1916)	20
Woman's Medical College of Pennsylvania (1915) 2;	(1916)	5
University of Vermont (1907) 1;	(1913)	1
FAILED		
Hahnemann Med. Coll. and Hospital of Philadelphia	(1916)	71.6
Jefferson Medical College of Philadelphia	(1915)	69.8
University of Pennsylvania	(1912)	62.6
University of Berlin	(1908)	73.4
Royal University of Naples (1892) 60; (1895) 62.2;	(1905)	33

* Graduation not verified.

Rhode Island January Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Jan. 3-4, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the two candidates examined, 1 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1906)	88.2
FAILED		
Laval University	(1900)	74.5

Book Notices

A DOCTOR'S DIARY IN DAMARALAND. By H. F. B. Walker. Cloth. Price, $2.10 net. Pp. 202, with illustrations. New York: Longmans, Green & Co., 1917.

The author was one of the physicians of South Africa who, on the breaking out of the rebellion, offered their services to the Union. He was called on for active service in February, 1915, at which time he was appointed to one of the mounted field ambulance units attached to General Botha's army. This book is a record, in the form of a diary, of Dr. Walker's adventures and observations from the time he left Cape Town till his return. Owing to the nature of the country, his experiences were exciting, as may be imagined, and he had to endure many hardships. Damaraland is, or was, a German province of South Africa, and the scene of General Botha's successful war with the Germans. Usually the author's unit was far from the scene of actual conflict, and he did not know that fighting had taken place until the wounded came in; consequently one can get only a vague idea of the military aspect of this remarkable campaign, which deprived Germany of the colony. However, while the book gives only a vague idea of what Botha did, it gives a graphic description of the life of a medical officer connected with a rapidly moving army in an unusually wild, desolate country. For days at a time, Dr. Walker and his unit were practically without water or food for either animal or man, and often they suffered from heat in the day and from cold at night. The book is both interesting and enlightening: it is enlightening in that it gives one an idea of the country, of the Germans' methods of colonizing and, above all, of how far-reaching this great war really is. In reading of Botha's campaign in South Africa, we may have regarded it merely as one of England's isolated campaigns with Germany. This book reveals that it was far from insignificant—rather that it was an important and costly campaign, especially for the Germans, and one of far-reaching possibilities. After all, however, the book is interesting and important to medical men as a revelation of what army surgeons have to and can do under difficult circumstances, and in spite of hardships.

KIRKES' HANDBOOK OF PHYSIOLOGY. Revised and Rewritten by Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Ninth American Revision. Cloth. Price, $3.75. Pp. 790, with 509 illustrations. New York: William Wood & Co., 1917.

For the information of those unfamiliar with the general plan of this well known textbook, the following brief statements might be made: Three introductory chapters, dealing with the phenomena of life, structure of the tissues (histology), and an outline of physiologic chemistry, cover 117 pages of text. The succeeding chapters deal with mechanical and chemical physiology, many chapters ending with laboratory experiments on the particular subject under discussion. The text ends in the conventional manner with two chapters (Chapters XVI and XVII) on the reproductive organs and development, followed by a carefully prepared subject index.

It is apparent that the book is not designed for study by medical students, or as a reference book for physicians. This follows from the extensive, illustrated treatment of histology and elementary physiologic chemistry, subjects that are usually classed as prerequisites to physiology. Again, the majority of the laboratory experiments are quite simple. Some, on the other hand, are difficult, and need special training and apparatus not usually found in the laboratories in which the book will be used to the best advantage (those dealing with calorimetry or plethysmography). Whereas quite a number of laboratory experiments concern digestive juices and elementary urinalysis, there are none on absorption or on the cerebrum, cerebellum or spinal cord. With the inadequate instructions given in the paragraphs dealing with laboratory directions for experiments on vision, it is not clear how the student will learn the principles of ophthalmoscopy and retinoscopy, much less be able to fit "glasses for himself and at least two others." The method of using an ophthalmoscope is most superficially described under the heading "retinoscopy," with only fleeting and inadequate reference to the direct and indirect methods or the physical principles involved. Corneoscopy is performed with a Javal-Shiötz ophthalmoscope (?). Retinoscopy or skiascopy is not mentioned except where the term "ophthalmoscopy" should have been used. It appears that in the text and laboratory directions the author confuses retinoscopy with ophthalmoscopy as these terms are commonly used. When the student is recommended to fit glasses for himself and two others, more and better information should appear in the text and laboratory instructions.

As a textbook, it assumes a rank intermediate between a high school physiology and one designed for medical students. The book is serviceable for college students and students of dentistry, for the presentation is, on the whole, good, and the subject matter brought up to date.

The distinction between myxedema and cretinism is, to say the least, poorly expressed. It is not certain that most physiologists would agree to the statement that the "parathyroids are intimately associated with the thyroids in the constructions of the thyroid compound," or that the "parathyroids contain iodin." Furthermore, when the best experimental evidence points to the conclusion that death following complete suprarenalectomy is due to the removal of the cortex and not the medullary portion of the suprarenal gland, it is rather disappointing to find no mention of this fact, particularly when the importance of epinephrin's coming from the medulla is probably overemphasized, as appears from the recent experimental work of Stewart.

There are many instructive illustrations in the text. Some of the older ones might profitably be replaced by better ones. Those illustrating the chapter on the nervous system are especially commendable. The typographic errors are not numerous. "Chromofile" is, possibly an etymological mistake. Again, like other revisions, some of the illustrations are credited to "Moret" instead of to "Morat." The other errors are inconsequential.

Medicolegal

Choice of Remedies in Action for Malpractice

(Stokes vs. Wright (Ga.), 93 S. E. R. 27)

The Court of Appeals of Georgia, Division No. 1, in affirming a judgment in favor of the defendant, says that this was the second action brought by the plaintiff against the defendant, to recover damages for alleged negligence in an operation performed by the defendant on the plaintiff, Nov. 25, 1913. The first suit was filed to the January, 1916, term of the superior court, and was what is called an action in tort, or for a wrongful act not considered as a breach of contract. The defendant demurred generally, and also on the special ground that the alleged cause of action, if any existed, was barred by the statute of limitations. The demurrer was sustained and the petition dismissed, after which the plaintiff filed the present suit to the September, 1916, term of court, alleging the same facts as his cause of action, but claiming damages for the breach of the implied contract between himself and the defendant which resulted from the alleged negligent operation. Again the defendant demurred, and his demurrer was sustained, the court of appeals holds properly so. because the plaintiff, having elected in the first action to sue on the alleged tort, was bound by that election, and, his cause of action therefor being barred, he could not afterward prosecute this action for alleged breach of contract. When a person has two or more conflicting and inconsistent remedies for the same wrong, his election and actual prosecution of the one to a favorable or an adverse decision is a bar to the others. The plaintiff had the right to bring his action in tort, or for the breach of duty arising out of the contract of employment, express or implied. But he would not be permitted, after the choice of one of several inconsistent and conflicting remedies, which he might originally have pursued at his option, to change his position and take a course wholly inconsistent with the remedy which he first selected. When he elected to sue in tort and actually commenced his action for the tort, and prosecuted it to an adverse decision, his right to sue on the contract was lost. It was of no avail that the statute of limitations had already barred the action in tort at the time of the filing of the plaintiff's first suit. His election to sue in tort related back to the original wrong, and to his rights as they then existed. In other words, owing to the nature of the relation between a physician and a patient, the latter, in the case of malpractice by the former, ordinarily has a choice of remedies, and may sue the physician either in contract or in tort. If he elects to sue in tort, and actually commences and prosecutes his action to a final adverse decision, his right to sue as for a breach of the contract, or a breach of the duty imposed by law, by reason of the defendant's calling and the relation between the parties, is lost. And this is true although at the time of the commencement of the action for the tort it was barred by the statute of limitations. The election to sue in tort, and the prosecution of such suit to final judgment, relates back to the original transaction out of which the action arose, and constitutes an irrevocable election of remedies as they then existed on the part of the patient.

Position of All-Time County Health Officer

(Harrington vs. State ex rel. Van Hayes (Ala.), 76 So. R. 422. State ex rel. Smith et al. vs. Justice (Ala.), 76 So. R. 425)

The Supreme Court of Alabama holds, in the first or Harrington case, that the position or place of an "all-time" health officer for a county is not an "office," within the meaning of Section 1467 of the Code of 1907; or, in other words, that appellant Harrington was not an officer of the state, or holding or attempting to hold an office under the authority of the state, within the meaning of that section, and, for that reason, that he was not required to be an elector of the state to be eligible to his position. If a county health officer is an officer within the meaning of Section 1467, then it would seem that he is a county officer within the meaning of Section 175 of the Constitution—in which case he would be removable only by impeachment, as provided by the Constitution. The statutes providing for such health officers prescribe other summary modes for their removal from office. If, therefore, they are county officers, these various statutory provisions as to their removal from office would be void. This court is committed to the construction of the state health and quarantine laws as creating a system which places the entire control and management of these subjects in the hands of the state board of health, and the respective boards for the several counties acting under the state board. The statutes also provide for various agents, employees, and officers of these various boards, state and county; and these are mentioned in the statutes as state and county officers, and, at other times and in other places, as officers of the boards which elect or appoint them. To treat or construe them to be officers of the boards, and not of the state and county, gives the entire system harmonious operation and effect as expressly written and provided.

In the second or Justice case, the court holds that when the court of county commissioners of Elmore County, in the exercise of the delegated power, declared, by proper resolution entered on the minutes of that court, that the terms of the act of the legislature of Sept. 25, 1915, should have effect in Elmore County, by the establishment of the office of public health, to be filled by a reputable practicing physician of the county "to be elected by the county board of health," and that his duties should be those defined by the provisions of the act having application to such county health officers, and directed the judge of probate to notify the chairman of the county board of health of this resolution and order, and by the resolution fixed the salary of the health officer at the sum of $2,100 per annum, to be paid monthly on the warrant of the judge of probate out of moneys in the general fund of the county, and further notified the county board of health of this action, the discretion and power of the court, under the amended statute as to the health officer in Elmore County, ceased. On this notice from the court of county commissioners, it became the duty of the county board of health to elect an incumbent in the office, and when that board, by the election of Dr. Justice as county health officer, discharged its delegated authority from the legislature, it was without further power or duty in that behalf. And Dr. Justice's employment, election or status, as health officer, was fixed, on his qualification and the assumption of the duties of his office, subject to the several provisions of the amendatory acts relating to his term of office, duties and incumbency therein. The county board of health may not compel the board of revenue or court of county commissioners to exercise the discretion reposed in the court or officials by the act, or control that discretion to declare, within the terms of the act, the necessity for the health officer. Similarly, the board of revenue or court of county commissioners may not control the county board of health, in the exercise of its discretion and power to elect or direct the "all-time" health officer for the county within the provision of the act. It cannot revoke its order declaring the necessity for an all-time health officer and putting into operation in the county the provisions of the statute.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

Annual Meeting, held in Chicago, Feb. 5, 1918

The President, Dr. David A. Strickler, Denver, in the Chair

Medical Licensure and Standards

Dr. David A. Strickler, Denver: The enforcement of the law and regulations against limited practitioners—the cults—is one of the most perplexing problems in all the states in which limited licenses are provided. Colorado has attempted to meet it by printing in a prominent place on the face of the license the statutory provision and limitations. This is done to inform the public of the limitations and to assist in the administration of the law. Thus far no infractions of the law have come to our knowledge.

As to reciprocity, such licenses should not be influenced by reciprocity agreements, but should rest wholly on evidence of good moral character, satisfactory practice record, and educational qualifications, without reference to the attitude of the state from which the applicant comes.

A year ago we advocated the reporting to a central organization of all information relative to medical crooks and frauds, practitioners of ill repute, revocation of licenses, legal actions brought against practitioners for violating the medical practice act, commitments after conviction for criminal acts, etc. I have given the subject much thought, and believe it is not feasible for the federation to organize and maintain a central body, because of the large amount of detail and expense involved. My suggestion is that the federation by resolution or otherwise encourage its members to send all such data to the Biographic Department of the American Medical Association.

Difficulties in the administration of practice acts are due largely to an indifferent public. A great service would be rendered the membership generally by a sustained effort on the part of the medical profession toward educating laymen as to the high aims of the medical profession in general and on public health matters in particular.

In regard to standards of medical education, the committee of the federation is making progress. Some members of the federation claim that the evaluation of colleges has been well done by the Council on Medical Education of the American Medical Association, and that we should accept its ratings. While acknowledging the value of the work done by that body, I am of the opinion that the purposes served by the two bodies are so distinct that each should establish its own standards.

I believe it is a mistake that any state establish different standards for those who are licensed to practice the healing art. Fake educational institutions should be prohibited by every state in the Union. This prohibition can be accomplished through legislative enactments which require bona fide educational standards of all institutions chartered to teach any profession.

Uniformity of Reciprocity Applications

Mr. F. C. Dodds, Superintendent of Registration, Department of Registration and Education, Springfield, Ill.: We have heard a great deal about the standardization of schools and colleges, but not about the standardization of examination. That is equally as important as the standardization of colleges. In the last year I have issued fifty reciprocal certificates to physicians and surgeons. The blanks that come to us in the ordinary course of business are voluminous. It makes no difference to the State of Illinois if, we will say, a physician from Colorado comes to us; all we want to know is that he has met the requirements of the Colorado board in the matter of education, and also that he has passed a successful examination before that board and is certified to us by that board as being a reputable practitioner. It matters not to us what form of certificate or license was issued to him, how many names of members of examining committees are shown on the license, and the exact wording of it. All we are particularly interested in is in knowing that he has fulfilled the requirements for preliminary education and has passed a successful examination. This federation should undertake to prepare a uniform blank covering the different requirements that would be needed in the way of photographs, preliminary education, etc.

Since July 1, 1917, the examining board of Illinois has had but one applicant for a license to practice osteopathy, and he passed. We have not had an applicant from a chiropractic school that could qualify. We have not issued a license to a chiropractor since July 1, 1917, and I do not think we will issue a license to any one to practice chiropractic for many years to come, because the educational requirements for the chiropractor in Illinois are the same as for the physician and surgeon.

Sectarianism in the Science of Healing, as Treated in Legislative Acts and Judicial Decisions

Mr. Harry Eugene Kelly, Chicago: The fundamental thing for consideration in the regulation of the practice of healing is the question of cults or sectarianism. No matter what the educational standard is, some one will not be able to reach it, and that somebody will desire, nevertheless, to practice healing. Since he cannot attain the educational requirements, he will go about seeking some other means by which he can get into the profession. A man who wants all the advantages of practice without going through hardships to qualify for those advantages usually organizes a society of some sort and makes it appear that the society is organized for some great benefit to the public. These persons begin through their associations to bombard the legislature, because the legislature makes the laws. They tell the members of the legislature that they have worked hard in trying to qualify themselves to do the public great good, and yet it is nothing but camouflage.

The object of a medical practice act is to create a standard, and anybody reaching that standard and passing an examination should be entitled to practice by any method of healing he desires. The object of the law is to require a man to be able to diagnose a case and prescribe some form of treatment for it, leaving him free to practice whatever method of healing he pleases. It is hard to get members of the legislature to understand that. All persons interested in the science of healing should maintain that all persons who heal disease as a profession shall be required to pass examinations in the same subjects before they shall be permitted to heal according to any method whatever. Nothing else is logical.

Responsibilities of State Boards in the Present War Emergency

Dr. C. E. Sawyer, Marion, Ohio: Before the war began, small communities were lacking medical attention because recent graduates, after an expensive and extensive preparation, could not afford to accept the remuneration obtainable in small communities. Since the war this condition has been increased by the call of medical men to the colors.

With 17,000 physicians already under commission and many others needed in the making of our next army, there is an increasing gap in our supply of physicians. To provide for this is one of the responsibilities brought about by the war. At least three years could be saved in the system of the medical student's education and still have the actual standard of service as high as at present.

Our public school system should be organized on a more business-like basis, and students should be directed into vocational and professional channels earlier. This would save two years in the grades and another year could be eliminated from the college and medical course.

The restrictions and requirements of some states are senseless. Medicine must be broader than state's rights; it must be directed by a national legalized body with power to act.

With hospitals and colleges being standardized by various state board committees acting separately, no real standard can be maintained. The medical boards are the only real authorities for proper standards.

This federation should create a commission with power to act in the following important matters: 1. The fixing of premedical requirements consistent with a reasonable and regulated practical course. 2. The standardization of medical colleges on the basis of a minimum requirement fixed by the federation. 3. The standardization of hospitals on the basis of two classes, general teaching hospitals and special hospitals. 4. The creation of a national reciprocal requirement that will be just and equable.

ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

Held in Chicago, Feb. 3, 1918

(Concluded from page 568)

JOINT SESSION OF THE COUNCIL WITH THE FEDERATION OF STATE MEDICAL BOARDS

The Civil Administrative Code of Illinois and Medical Licensure

This paper, by Mr. Francis W. Shepardson, Director of Registration and Education, Springfield, Ill., is to be published in The Journal.

The General Problem of the Minor Forms of Healing

Hon. Howell Wright, State Senator of Ohio, Cleveland: Education is the fundamental basis for licensure of the limited or unlimited practice of medicine. With few exceptions, the present system and laws pertaining to medical licensure place too little emphasis on education. Our medical laws are prohibitive rather than based essentially on educative standards. A great majority of the ninety-three separate and independent boards in the fifty states, having to do with the licensing of those who seek to practice the healing art, are not educational, but politicomedical boards. An examination of the medical practice acts indicates that in a majority, including Ohio, the legal fundamental basis of medical practice is commercial. In any criminal procedure aimed to protect the public from ignorant practitioners, the question to be proved should be, "What are the man's educational qualifications for the work in question?" and not, "Did he get a fee?" The fact that this use of the police power of the state was delegated primarily to detect and prosecute quacks does not justify the emphasis of the commercial factor of medical practice over and above the educative.

It is fundamentally wrong to lodge the police power of the state in the hands of representatives of any profession to prescribe the educational qualifications of that profession, to govern its license, and to regulate its practice. It was undoubtedly necessary for the medical profession to take the lead in advocating our present licensing system and medical laws. However, it should no longer have to fight every year in the legislature as the guardian of the public interests in opposition to other healing professions. It can well continue to advocate higher educational qualifications for the degree of Doctor of Medicine and for the license to practice. It has no fear of serious competition from other healers. If it continues to render effective service, the public will demand that service.

The general educational board or a department of education and registration should gradually supersede the present system of politicomedical licensing boards. Ohio is undoubtedly ready to consider one of these plans. In general, if the board plan is adopted, no healing profession to be regulated by the board should be represented on it. The advice and assistance of representatives of the various healing professions can be secured in technical and professional matters, but final authority—subject, of course, to the legislature—over all that pertains to the examination and licensing of these professions must rest in the hands of the board, or like the Illinois plan of a department headed by a well qualified lay educator. The states must soon choose between further extension and multiplication of the modern "guild controlled" licensing system and the single licensing educational board or department.

There should be more systematic state control and regulation of educational institutions existing for the purpose of granting professional degrees. The present loose system in some states makes the inspection and recognition of certain schools by the licensing authorities almost impossible, and is a decided bar to the enactment of modern legislation.

Uniform educational standards should be applied to all medical cults or sects. If the minor forms of healing, including optometry, osteopathy, chiropractic, etc., are the practice of medicine or the healing art in the sense that "the practice of medicine means the science of preserving the health and treating diseases for the purpose of cure, whether such treatment involves the use of medicinal substances or not," then the same educational standards must be applied to them as to the doctor of medicine. If not, they should be regulated as "limited practitioners," and their educational qualifications gradually raised to standards corresponding to their work.

There seem to be reasons why those who seek to cure disease by spiritual means or prayer, in obedience to the tenets of a recognized church, should be exempt from the application of the educational standards. The contagious disease problem, however, presents the element of doubt. Spiritual healers are now exempted in some states on religious grounds, subject to certain safeguards. There is no reason for any exemption from any law pertaining to public health or welfare.

The United Service Medical School

Dr. Isadore Dyer, New Orleans: The excellent college laboratories, the abundance of clinical material, and the hearty cooperation of the faculties of the medical schools both in Chicago and New York have fully satisfied the National Board of Medical Examiners that the plan of conducting examinations in the large cities is a decided step in advance. It affords a broader scope in the examinations themselves and brings the work of the board to the notice of men engaged in medical education to whom the operation of the board and its purposes should appeal as to no other class of men.

The members of the National Board of Medical Examiners have sacrificed many personal interests and devoted much time to the problems of medical education and of developing standards, in the hope that the results may make for a stable future. The successful candidates are gratified at their achievement, and more than one of those who have failed have remarked that it was a privilege to undergo the test, even though unsuccessful.

Most men who apply for the federal services might be better trained before they actually qualify for service. This can be done in a school especially devised for that purpose. The young man who is ambitious to reach the best efficiency in either the Army or the Navy goes to West Point or Annapolis for his training. Why should not such an opportunity be afforded for a young man who wants to enter the medical departments of the services? It is practicable in more than one way:

1. By the establishment of a national medical service school in which students with the standard preliminary education may be received for a period of five years for training as a medical officer in one or another of the federal services. From the beginning, his laboratory training, his class work and his vacation periods may be planned to train him to the fullest efficiency, and at the end of the second year of such a school course, the student might elect or might be required to elect the department in which he wishes to enter when graduated, so that the remainder of his course could be arranged to fit him for Army, Navy or Public Health Service, as he may have chosen. The detail of the curriculum plan could be worked out as easily as in any of the technical schools where specialty courses are arranged.

2. The second plan, and one which might easily be started as the beginning of a school which could later expand into the first plan suggested, is to take over students who have already completed two or more years in a first grade medical school, giving them the three years of special training in the service of their election. Such a plan could successfully provide hospital and laboratory training in the government hospitals and institutions, and could afford field or service training during vacation periods. The consummation of such a plan is not difficult if it is decided on. Already the Army, the Navy and the Public Health Service have established laboratories and teaching facilities. At the same time, there are enough government and civil hospitals in Washington to afford clinical material. There are enough experienced and trained teachers in the several services to make a large and necessary part of a faculty which might be readily augmented by picked men from civil institutions. There should be a careful plan for organization of such a school, and particularly with reference to the faculties, so that the common aim of efficient training may be arrived at, without too great preponderance of military technic.

DISCUSSION

Dr. Joseph Byrnes, New York: With all our equipment, with all our medical education, why is it that an untrained spiritual healer is able to step into a case and turn us clean out? The profession has not bothered itself about it. We have been doing nothing in the way of educating the people to meet that. We know the psychologic side of medicine, but we do not practice it. If we did practice it, the faith healer would not have such a foothold.

Dr. J. Henry Carstens, Detroit: Why do the Christian Scientists beat us to it? Because they lie, and the worst feature about it is, they don't always know that they lie. They go to a patient's bedside and say they can cure him. They hypnotize that patient. On the other hand, we are frank and conscientious and do not hesitate to tell a patient that we cannot cure him if he has an incurable malady. Knowledge will succeed in the end; but in the meantime faith healers are having case after case of contagious diseases that they do not report. These diseases are transmitted from person to person, and many of them die, especially children, because they catch the contagion from some other patient.

Dr. Sivers, Centerville, Ohio: The average medical man has studied medicine purely from a physical standpoint. The reason why faith healers beat us to it is that some cases of sickness are purely psychologic. There are other cases that are pathologic. The medical man comes in and does his work so far as the pathologic part of that individual is concerned, but he is ignorant, as a rule, of the psychologic condition of that patient. Osteopathy, chiropractic, hypnotism and healing by prayer are all based on the fact that the operator believes that he is doing something toward healing the patient, not because he does it, but because he believes he does it, and inflicts that belief on the psychologic nature of the patient, and gets the patient to believe that he is having something done for him.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Boston

December, 1917, **15**, No. 12

1 *Lumbosacral Pains Considered Anatomicaly. G. G. Davis, Philadelphia.—p. 803.
2 Gynecologic Paper. W. P. Graves, Boston.—p. 807.
3 Cord and Nerve Affections Causing Low Back Pain. C. H. Henninger, Pittsburgh.—p. 814.
4 *Genito-Urinary Causes of Low Back Pain. T. Baker, Pittsburgh.—p. 819.
5 Displacements of Bones as Cause of Low Back Pain. F. J. Fassett, Seattle.—p. 826.
6 Gutter Ankle Splint. W. J. Merril, Philadelphia.—p. 840.

1. **Lumbosacral Pains Considered Anatomically.**—Davis emphasizes the fact that localized pain and tenderness is good evidence of local injury. Referred pains can originate from such a multitude of sources as to render them extremely unreliable for diagnostic purposes. That the most common cause of pain is rupture of ligaments; that sometimes overstretching the nerves is a cause, and finally, that while displacements of the various joints, including the sacro-iliac, do occur, it is exceptional for them to be of sufficient extent to produce positive objective evidence of their occurrence and rarely, if ever, to demand manipulation for their reduction. From the viewpoint presented by Davis it follows that benefit should be derived from apparatus so constructed as to support, fix and limit the extent of motion of the parts involved.

4. **Genito-Urinary Causes of Low Back Pain.**—Baker's experience with low back pain due to genito-urinary causes is limited to 41 cases collected from a series of 146 cases of chronic prostatitis and spermatocystitis. There were 15 cases in which the pain was purely sacral or lower lumbar, and constituted a prominent symptom; in 5 cases there was pain over the sacrum and one or both sacro-iliac articulations, and radiating along the course of the sciatic nerve; 6 patients had pain localized over the sacro-iliac articulation on one or both sides; there were 8 cases in which the pain was sacral, but radiated along the sciatic nerve on one or both sides; 5 cases in which the pain was localized definitely over one or both sacro-iliac articulations or gluteal areas and radiated along the sciatic nerve; and of sciatic pain alone, simulating mild sciatica, there were but 2 cases. The frequent occurrence of pain radiating along the sciatic nerve is very striking, and in many of the cases it was very annoying. In none of the cases was there tenderness along the course of the nerve, which distinguishes this type of pain from true sciatica. Of the 41 cases, 25 were nongonorrheal (that is, there had been no history of gonorrhea within three years, and no gonococci were to be found in the prostatic secretion, yet in some of these the specific infection was primary); other organisms were found, however, principally bacilli and cocci. The 16 remaining cases were definitely due to gonococcus infection.

American Journal of Public Health, Boston

January, 1918, **8**, No. 1

7 War and Mental Diseases. P. Bailey.—p. 1.
8 Red Cross and War. W. H. Frost, Washington, D. C.—p. 8.
9 Rehabilitation of Diseased and Injured Soldiers Due to War. E. G. Brackett, Washington, D. C.—p. 11.
10 Morbidity Reports and Records of Army. W. P. Chamberlain.—p. 14.
11 Classroom Ventilation and Respiratory Diseases among Schoolchildren.—S. J. Baker, New York.—p. 19.
12 Industrial Hygiene in Wartime. W. G. Thompson, New York.—p. 27.
13 Rats and Insects as Public Enemies. W. T. Sedgwick, Cambridge.—p. 34.
14 Work of Public Health Committee of Massachusetts Medical Society. E. H. Bigelow, Framingham.—p. 35.
15 Conservation of Child Life. W. J. Galivan, Boston.—p. 37.
16 *Relation of Streptococci to Bovine Mastitis and Septic Sore Throat. D. J. Davis, Chicago.—p. 40.
17 Activated Sludge and Treatment of Packinghouse Wastes. L. Pearse, Chicago.—p. 47.
18 Activated Sludge Test at Cleveland. R. W. Pratt, Cleveland.—p. 55.
19 Why Life Insurance Companies Should Ally Themselves with American Public Health Association. C. J. Hastings.—p. 61.

16. **Streptococci and Septic Sore Throat.**—The question of pasteurization is an interesting one in relation to these infections. In the case of several epidemics in this country, Davis says, that the infected milk had been pasteurized by the "flash" method and the evidence in all indicated quite clearly that the milk was contaminated before pasteurization. Therefore the "flash" method is inefficient. The harm it may do by giving people a sense of false security is also self-evident. In certain epidemics the milk was consumed raw. It would seem that the only safeguard against such epidemics is efficient pasteurization not only of the milk and cream, but also of the material entering into the manufacture of other milk products. It is a point of some importance that it is not uncommon for firms to sell pasteurized milk but to sell cream in the raw state. The latter is even more dangerous than milk. The question as to what constitutes efficient pasteurization for streptococci is one that requires further study. It is commonly stated in the literature that pathogenic streptococci are killed at relatively low temperatures (52-54 C. for ten minutes, Sternberg). Undoubtedly for many strains this is altogether too low. The recent work of Ayers and Johnson indicated that the thermal death point of typical streptococci varies considerably and one of twenty-two strains studied by them resisted heating for thirty minutes at 62.8 C. (145 F.) the usual temperature for pasteurization. Furthermore their viability in milk and milk products should be carefully studied since we know that media may exert an important effect on the resistance of organisms to heat. In Davis' work in which ninety-eight strains of streptococci were tested none of twenty-four pathogenic hemolytic streptococci of human origin resisted 60 C. (140 F.) for thirty minutes. Twenty of seventy-four strains of hemolytic streptococci of milk origin and having practically no virulence resisted 68.3 C. (155 F.) for thirty minutes. Davis knows of no evidence to indicate that strains of streptococci pathogenic to man can resist the usual temperature for pasteurization (145 F. for thirty minutes).

American Journal of Syphilis, St. Louis

January, 1918, **2**, No. 1

20 Intraventricular Treatment of Paresis. N. Sharpe, New York.—p. 1.
21 Syphilis of Inner Ear and Eighth Nerve. G. W. Mackenzie, Philadelphia.—p. 9.
22 Syphilis of Ear. V. Dabney, Washington, D. C.—p. 26.
33 Syphilis and Malignancy. B. P. Thom, New York.—p. 40.
24 Syphilitic Aortitis. L. A. Levison, Toledo.—p. 45.
25 Condyloma of Umbilicus. A. G. Rytina, Baltimore.—p. 64.
26 Masses in Neck. I. Cohn, New Orleans.—p. 67.
27 Tatooing and Syphilis. A. Keidel and E. L. Zimmermann, Baltimore.—p. 83.
28 Skeletal Roentgenography as Aid to Diagnosis of Obscure Syphilis. W. P. Coues, Boston.—p. 97.
29 Blood and Cerebrospinal Fluid in Three Hundred Known Cases of Syphilis. C. C. Dennie and D. O. Smith, Kansas City, Mo.—p. 101.
30 Technic of Bordet-Wassermann Reaction. H. K. Detweiler, Toronto, Canada.—p. 120.
31 Treatment of Early Syphilis in Relation to Development of Neurosyphilis. L. G. Lowrey, Boston.—p. 138.
32 Syphilis Clinic of Emory University, Atlanta, Ga. W. B. Emery, Atlanta, Ga.—p. 142.
33 Syphilis and War. H. H. Hazen, Washington, D. C.—p. 144.
34 Effect of Venereal Diseases on Infant Mortality. F. H. Bartlett, New York.—p. 156.
35 Adequate Treatment for Syphilis. H. G. Irvine, Minneapolis.—p. 167.

Archives of Internal Medicine, Chicago

February, 1918, **21**, No. 2

36 *Transient Complete Heart Block with Numerous Stokes-Adams Attacks. F. N. Wilson and G. C. Robinson, St. Louis.—p. 181.
37 *Endocrine Origin of Muscular Dystrophy. N. W. Janney, S. P. Goodhart and V. I. Isaacson, New York.—p. 188.
38 *Studies in Acute Nephritis. E. H. Mason, Montreal, Que.—p. 216.
39 Papillary Carcinoma of Kidney with Metastasis in Brain. E. F. Hirsch, Chicago.—p. 231.
40 *Relationship of Toxic Lymphoid Hyperplasias to Lymphosarcoma and Allied Diseases. D. Symmers, New York.—p. 237.
41 *Chemical Changes in Blood and Urine in Progressive Muscular Dystrophy, Progressive Muscular Atrophy and Myasthenia Gravis. F. H. McCrudden and C. S. Sargent, Boston.—p. 252.
42 *Nature of Pathologic Process in Progressive Muscular Dystrophy. F. H. McCrudden, Boston.—p. 256.
43 *Effect of Thyroid Secretion on Excitability of Endings of Cardiac Vagus. R. L. Levy, Baltimore.—p. 263.

44 Maintenance Diet in Diabetes Melitus as Determined by Nitrogen Equilibrium. H. O. Mosenthal and S. W. Clausen, Baltimore. —p. 269.
45 Distribution of Bile in Certain Types of Jaundice. M. A. Blankenhorn, Cleveland.—p. 282.
46 *Experimental Intestinal Obstruction. F. L. South and L. L. J. Hardt, Chicago.—p. 292.

36. **Transient Complete Heart Block.**—A case is cited by Wilson and Robinson which is of interest because electrocardiographic records were obtained during several Stokes-Adams attacks, and also as an example of transient complete heart block. The electrocardiograms taken shortly after the patient entered the hospital and while she was having syncopal attacks, revealed the presence of complete auriculoventricular dissociation with frequent periods of ventricular standstill lasting from seven to eleven seconds, and corresponding to the syncopal attacks. On the following day, complete dissociation returned for a time, but there were no periods of ventricular standstill and the complete dissociation quickly gave place to a 2:1 block. Four days later the only sign of defective conduction which remained was a prolongation of the P-R interval which measured 0.31 second. Thereafter, the improvement in conduction was less rapid, but by the sixteenth day the P-R interval had decreased to 0.20 second. During this time there was also a rapid improvement in the patient's general clinical condition. The general picture, then, was one of complete dissociation with the rapid idioventricular rate and ventricular standstill causing Stokes-Adams syndrome. This was followed by improvement associated with a rapid decrease in the grade of the heart block.

The authors are of the opinion that the ventricular stoppage was partly dependent on the abnormal character of the ventricular rhythm during the periods of ventricular tachycardia. The length of the periods of ventricular standstill was apparently determined by the time required for sufficient improvement in the auriculoventricular conductivity to allow an auricular stimulus to reach the ventricles; for, as the degree of block diminished the periods of ventricular standstill became shorter. The periods of standstill were apparently never long enough to allow the usual slow idioventricular rhythm to develop. Three factors, then, took part in the production of the syncopal attacks: the abnormal character of the ventricular rhythm, the high grade of heart block, and the slow development of the idioventricular rhythm. The cessation of the syncopal attacks was apparently due to the occurrence of ventricular contractions arising in the left ventricle during the long ventricular pauses. The rapidity with which the block cleared up suggests that it was not due to some destructive lesion of the A-V bundle, but to some toxic or acute inflammatory process. The patient's history and the slight fever on the day of admission to the hospital indicate that she had recently had an acute infection. The presence of an old endocarditis and possibly a chronic myocarditis indicated by the history and the presence of mitral regurgitation may have been a contributory factor.

37. **Muscular Dystrophy.**—The metabolism in nine cases of muscular dystrophy was studied by the authors. In addition to certain disturbances in the creatinin creatin metabolism, there was observed constant hypoglycemia and impaired utilization of carbohydrate. The metabolic picture presented is essentially the same as that recorded in the diseases of unquestionable endocrine origin (myxedema, hypopituitarism and Addison's disease) and after experimental removal of the thyroid or suprarenal glands in animals. In view of these metabolic findings, also the clinical as well as pathologic, the authors believe that it seems justifiable to regard muscular dystrophy a result of dysfunction of the ductless glands.

38. **Acute Nephritis.**—Studies were made by Mason in three cases of acute nephritis which demonstrate that in very severe cases of acute nephritis the kidney function during the early stages is much better than the actual state of the kidneys would seem to warrant. This is due to the increased stimulation from which they are suffering. With the subsidence of the inflammation the function tends to fall to a very low level, which level is more truly an index of the kidney state. As convalescence is established this level tends to return to that at which the kidneys remain permanently damaged. This "slump" in function takes place simultaneously with a marked improvement in the clinical condition of the patient. Theophyllin probably acts in part by lowering the chlorid threshold, thereby allowing the chlorids to pass out of the blood plasma, water following.

40. **Lymphoid Hyperplasias.**—Since the lymphoid tissues are so frequently exposed to the action of bacterial toxins and irritants brought to them in solution from absorptive surfaces of vast extent, and since, in these circumstances, they so often display a definite tendency to respond to irritation by hyperplasia of their cellular constituents, Symmers thinks it not improbable that a like reaction is to be held responsible for the inception of certain types of disease characterized by overgrowth of lymphoid cells, local or general. If the irritant is withdrawn after the lapse of a reasonable interval of activity the cellular reaction in the lymph node ceases and the hyperplastic process is withdrawn. If, however, the irritant continues to act it appears to be inevitable that the cellular response will also continue. Finally, a time is to be expected at which, either as a result of the activity of the same irritant, or, more probably, as the result of the formation of a self-perpetuating toxin in the lymph nodes concerned, the reaction is converted into a process characterized by indefinite hyperplasia. In the absence of a better explanation, this, according to Symmers, is a not illogical method of accounting for the origin of the lymphosarcomas and for similar otherwise inexplicable lesions of the lymphoid system, including not only certain localized lymphoid hyperplasias, but chronic lymphatic leukemia, pseudoleukemia and the like.

41. **Chemical Changes in Blood and Urine in Progressive Muscular Dystrophy.**—In three cases of progressive muscular dystrophy McCrudden and Sargent found: (1) muscular weakness, (2) hypoglycemia, (3) hypocholesterinemia, (4) creatinuria, (5) normal ammonia excretion, (6) a rise of blood sugar in the treated patients with a parallel increase in strength.

42. **Pathologic Process in Progressive Muscular Dystrophy.**—The facts marshaled by McCrudden indicate that the myasthenia of progressive muscular dystrophy is due to hypoglycemia; that the hypoglycemia and fatty infiltration are due to impaired glycogenesis, the carbohydrate of the food being probably changed largely to fat instead of glycogen; and that this impaired glycogenesis is the result of suprarenal or other endocrine disease.

43. **Effect of Thyroid Secretion on Cardiac Vagus.**—Levy found that in cats pithed to midthorax, repeated stimulation of either vagus with a given strength of stimulus results in a uniform series of responses, both as to degree of depressor effect and duration of cardiac inhibition. After inducing secretory activity in the thyroid gland, even at a time when increased pressor response to a given dose of epinephrin gives evidence that there has been a pouring out of thyroid secretion, there is no significant alteration in depressor effect or duration of cardiac inhibition following stimulation of either vagus nerve. It is therefore evident that after the thyroid gland has liberated its secretion in sufficient amount to sensitize the sympathetic structures acted on by epinephrin in raising arterial pressure, there is no demonstrable effect on the excitability of the endings of the cardiac vagus.

46. **Experimental Intestinal Obstruction.**—South and Hardt summarize their findings as follows: 1. A majority of the dogs with isolated loops succumb to perforative peritonitis. 2. But the development of toxic symptoms and death may occur independently of peritonitis. 3. Symptoms on injection of loop contents are different from those due to absorption. 4. Washing of the loop delays the development of symptoms and onset of death. 5. Loss of body weight is not great enough to be an important factor in the process. 6. Overdistention and strangulation are not necessary factors in the development of symptoms. 7. Animals may live indefinitely with loops draining externally. 8. Animals may live indefinitely with loops draining directly into the peritoneal cavity. 9. Dogs may continue well and active with enormously distended loops that have closed spontaneously.

Boston Medical and Surgical Journal

Feb. 7, 1918, **178**, No. 6

47 Laboratory Methods in Tuberculosis. B. White, Otisvile, N. Y.—p. 175.
48 Problem of Physical Selection Applied to Large Numbers of Applicants. A. F. Downing, Cambridge.—p. 177.
49 Reeducating German War Cripples at Düsseldorf. D. C. McMurtrie, New York.—p. 182.
50 Physical Selection in Its Relation to Heart and Lung Conditions. M. J. Cronin, Boston.—p. 187.
51 *Study of Kidney Function in Senility. W. C. Rappeye, Foxboro.—p. 191.

51. **Kidney Function in Senility.**—Rappleye's study was made on a group of forty-one patients, whose ages ranged from 70 to 88 years. These patients were free from gross evidences of renal insufficiency or other compromising conditions (fever, edema, dyspnea, anemia of note, etc.) and most of them were active workers. Under the conditions of diet and hospital routine the upper normal value of blood urea nitrogen is considered as 15 to 16 mg. per 100 c.c., the blood being drawn before breakfast, twelve to fourteen hours after the preceding meal. Of the cases studied 50 per cent. showed a moderate degree of retention, using the blood urea nitrogen figures as a criterion. Fifty per cent. of the cases showed a systolic blood pressure of 160 mm. or over; a higher percentage showed a diastolic pressure of 85 to 90 mm. or over. The blood pressure readings cannot be said to be related to either the blood urea nitrogen or to the rate of elimination of phenolsulphonephthalein. In twenty-seven cases in which the elimination of phenolsulphonephthalein was determined, thirteen showed a value of 40 per cent. or lower; nine of these were 35 per cent. or lower. A low value of elimination of the dye is associated for the most part with an elevated blood urea nitrogen. A good excretion is related for the most part with a relatively low blood urea nitrogen. Of the cases, 25 per cent. showed albumin in the urine. There were no cases of glycosuria or hematuria. Practically all of the cases showed casts, a customary observation. Sixty-six per cent. of the cases showed either an elevated blood urea nitrogen or a depressed value of phenolsulphonephthalein elimination (40 per cent. or lower). If one disregards the findings of only a few casts in the urine and diregards the blood pressure also, it can be said that, in the group of patients studied, about 70 to 75 per cent. show easily demonstrable evidences of kidney insufficiency. In this group there are several cases showing a relatively low blood urea nitrogen and a good renal function, but which have a considerable elevation of blood pressure, the so-called cases of essential hypertension.

California State Journal of Medicine, San Francisco

February, 1918, **16**, No. 2

52 Tuberculosis of Eye. P. H. Pierson, San Francisco.—p. 74.
53 Complement Fixation in Tuberculosis. B. Jablons, San Francisco.—p. 79.
54 Differentiation of Syphilitic and Tuberculous Pulmonary Lesions. W. C. Klotz, Los Angeles.—p. 82.
55 Metabolism and Disease. L. M. Breed, Pasadena.—p. 85.
56 Practical Value of Complement Fixation Test for *Gonorrhea*. M. Krotoszyner, San Francisco.—p. 90.

Florida Medical Association Journal, Jacksonville

January, 1918, **4**, No. 7

57 Anatomy of Bladder. F. J. Walter, Daytona.—p. 191.
58 Treatment of Cystitis of Aged. J. Reeve, Deland.—p. 192.
59 Histology of Prostate and Bladder. L. C. Ingram, Deland.—p. 194.
60 Physiology of Kidneys. J. W. Stephens, Deland.—p. 195.
61 Cystitis Complicating Enlarged Prostate. D. T. Smith, Daytona.—p. 196.
62 Treatment of Cystitis. C. C. Bohannon, Daytona.—p. 197.
63 Tuberculosis of Bladder. W. C. Chowning, New Smyrna.—p. 197.
64 Etiology and Pathology of Cystitis. V. Z. Baerecke, Deland.—p. 199.

Illinois Medical Journal, Chicago

February, 1918, **33**, No. 2

65 *Diagnosis of Age of Fetus by Roentgenograms. J. H. Hess, Chicago.—p. 73.
66 Malaria. J. W. Barrow, Carbondale.—p. 88.
67 Obstetrics in Country Practice. J. S. Templeton, Pinckneyville.—p. 90.
68 Extra-Uterine Pregnancy; Report of Case. J. B. Moore, Zeigler.—p. 93.
69 Tuberculosis. M. W. Harrison, Collinsville.—p. 96.
70 Plea for Intensive Treatment of Nervous Diseases. D. S. Booth, St. Louis.—p. 98.
71 Diagnostic Value of Roentgen Ray in Advanced Pulmonary Tuberculosis. M. Biesenthal and E. P. Carroll, Chicago.—p. 101.
72 Chronic Lead Poisoning in Etiology of Pernicious Anemia. A. F. Byfield, Chicago.—pp. 104.
73 Fractures of Pelvis and Resulting Injuries to Urethra and Bladder. H. C. Mitchell, Carbondale.—p. 107.

65. Also published in the *American Journal of Diseases of Children;* abstracted in The Journal, Dec. 29, 1917, p. 2208.

Journal of Experimental Medicine, Baltimore

February, 1918, **27**, No. 2

74 *Progress of Cicatrization of War Wounds. T. Tuffier and R. Desmarres, Paris, France.—p. 165.
75 *Studies of Oxygen Unsaturation in Venous Blood of Patients with Circulatory Disturbances. C. Lungsgaard, New York.—p. 179.
76 *Oxygen Determinations on Five Patients with Compensated Circulatory Disturbances. C. Lundsgaard, New York.—p. 199.
77 *Oxygen Determinations on Five Patients with Incompensated Circulatory Disturbances. C. Lundsgaard, New York.—p. 219.
78 *Factors Concerned in Appearance of Nucleated Red Blood Corpuscles in Peripheral Blood. C. K. Drinker, K. R. Drinker and H. A. Kreutzmann, Boston.—p. 249.
79 Skin Ferments. E. Sexsmith and W. F. Petersen, Chicago.—p. 273.
80 Intravenous Serotherapy of Weil's Disease (Spirochaetosis Icterohemorrhagica). R. Inada, Y. Ido, R. Hoki, H. Ito and H. Wani, Japan.—p. 283.
81 *Distribution of Spirochaeta Icterohemorrhagiae in Organs after Intravenous Serum Treatment. R. Kaneko and K. Okuda, Japan.—p. 305.
82 *Therapeutic Experiments with Rosenow's Antipoliomyelitic Serum. H. L. Amoss and F. Eberson, New York.—p. 309.

74. **Cicatrization of War Wounds.**—Some hypothetical conclusions bearing on the evolution of cicatricial tissue are suggested by Tuffier and Desmarres. The arterial circulation deposits in the wound chemical substances necessary for contraction of the wound and for epithelial proliferation. When the biologic process is not hindered by any special or severe bacterial infection this deposit is as regular as the circulation itself, and enables us to determine in advance the date of cicatrization. It even seems as though when the epidermization process is retarded by a slight infection the substances necessary for epidermization are stored up in the wound, and when the delay due to infection is removed the epithelium finds an accumulation of nutritive substances, and, so to speak, makes up the lost time. Moreover, when an infection entirely or partially stops epidermization, the authors have observed that after the infection has disappeared the progress of new epidermization is much more rapid than normally; it even passes the calculated curve. The infection apparently destroyed only the epithelium and left in the wound the chemical substances which activate epidermization. The existence of these physical or chemical activating agents has been indicated again by two anatomic clinical facts. In treating a scalp wound in which there had been practically no epidermization for many months. Tuffier and Desmarres applied over the entire surface of the sterile wound dermoepidermic grafts of fetal skin. After apparently taking, the grafts were absorbed and disappeared, but epidermization of the periphery of the wound, which hitherto had not progressed, took place abundantly, almost a hundred times as much as before. The authors believe that by mathematical measurements they can solve the problem of the action of various organic fluids on the cicatrization of wounds.

75. **Oxygen in Venous Blood with Circulatory Disturbances.**—Thirty-one determinations of the total oxygen combining power and the oxygen in the venous blood from vena mediana cubiti of sixteen resting patients are reported by Lundsgaard. The difference between the total oxygen capacity of the hemoglobin and the oxygen in the venous blood, the oxygen unsaturation, is calculated. In twelve patients with compensated heart lesions the unsaturation was found within normal limits, between 2.5 and 8 volume per cent. In four patients with incompensated heart disease the values for the unsaturation were all above the normal limit, from 9.7 to 15.2 volume per cent. A general discussion of the problem of interpreting the results is given. A comparison is drawn between the oxygen consumption calculated from direct

determination of the blood flow on a normal person (the author) and the oxygen unsaturation determined four years later on the same person. A close agreement between the two series of values exists.

76. **Oxygen in Venous Blood with Compensated Circulatory Disturbances.**—Forty-six determinations of the oxygen unsaturation, that is, the difference between the venous oxygen and the total oxygen capacity of the hemoglobin, have been done in five patients with compensated circulatory disturbances. Values within normal limits and near or below the normal average were found in four patients with regular pulse. In one patient with mitral insufficiency and arrhythmia perpetua extremely varying values were encountered. Six determinations were made; in one instance the value was within normal limits, in five above, and in one of those even higher than in most cases of incompensated heart lesions. A comparison is drawn between the directly determined oxygen unsaturation in these patients and the oxygen consumption calculated from previous experiments by Lundsgaard, in cases in which the blood flow was determined directly by the nitrous oxid method. A close parallelism is found.

77. **Oxygen in Venous Blood with Incompensated Circulatory Disturbances.**—This is a report of 103 determinations of the oxygen unsaturation of the venous blood of five patients with incompensated heart diseases. Values for the oxygen unsaturation within normal limits were found only under two circumstances: (*a*) in a stage of full compensation, and (*b*) in a stage of incompensation in which the symptoms were rapidly lessening. Values above the upper normal extreme were met with under three circumstances: (*a*) during incompensation, (*b*) during compensation just before the clinical symptoms of incompensation had developed, and (*c*) at times in patients with auricular fibrillations in a condition of complete and stable compensation. A comparison has been drawn between the directly found value for the oxygen unsaturation and the values for the oxygen consumption calculated from previous experiments by the writer on the blood flow (minute volume of the heart), in patients with similar clinical conditions. A close agreement existed. It seems probable from experience with patients under digitalis therapy that the oxygen unsaturation affords an objective criterion of the positive effect of the therapy.

78. **Nucleated Red Blood Corpuscles in Peripheral Blood.**—The authors found that increase in circulatory rate caused by hard exercise has no power to dislocate nucleated red cells from the bone marrow either in normal, in anemic, in hyperplastic, or in anemic and hyperplastic animals. In anemic and hyperplastic animals pseudocrises of nucleated red cells can be produced at certain periods by hard exercise, but careful analysis leads inevitably to the conclusion that the increase in these cells is merely a more accurate expression of circulatory content at the time of the procedure. Section of the vasomotor nerves to the four limbs with consequent dilatation of the marrow vessels and increased blood flow through the tissue does not result in the freeing of nucleated red cells from the bone marrow.

81. **Distribution of Spirochaeta Icterohemorrhagiae after Serum Treatment.**—On the bases of their findings the authors believe that they are justified in saying that the immune serum of Weil's disease is capable of destroying the spirochetes found within the organs in man, with the exception of the kidneys, and that the action of the serum on the spirochetes is spirochetolytic and spirocheticidal. The scattered spirochetes in the kidney, on the other hand, are resistant to the action of the immune serum. The spirochetes disappear almost completely from the organs during the convalescent stage of Weil's disease, even when no serum has been administered. The only organ to be excepted is again the kidney, but no comparison between serum treated and nonserum treated cases should be made in this respect, for spirochetes are found numerously in the kidneys even with serum treatment. The disappearance of the spirochetes from the organs and tissues in Weil's disease seems to be not so marked with the subcutaneous serum treatment as with the intravenous method, but the manner of their disappearance is about the same.

82. Rosenow's **Antipoliomyelitic Serum.**—Two series of experiments are described by Amoss and Eberson in which Rosenow's antipoliomyelitic serum, so called, has been compared with the immune serum derived from monkeys which have convalesced or recovered from experimental poliomyelitis. The results of the experiments are unequivocal. They show the Rosenow serum to be devoid of protective power. Moreover, they show that the Rosenow serum acts in the manner of normal horse serum in promoting infection in monkeys from an intravenous injection of the virus, in itself incapable of inducing paralysis. The immune monkey serum possesses, under the same conditions of administration, perfect protective power, as has been shown previously by Flexner and Amoss. The Rosenow serum acts in the manner of normal horse serum and promotes the passage of the virus of poliomyelitis from the blood into the nervous organs, and it does not protect from infection. The authors have found no evidence that Rosenow's serum under the conditions of the tests is effective therapeutically in monkeys or possesses antibodies of the same nature as those present in the blood of monkeys which have recovered from experimental poliomyelitis.

Kentucky Medical Journal, Bowling Green

February, 1918, **16**, No. 2

83 Treatment of Infected Wounds; Carrel's Technic. G. Loewy, Louisville.—p. 63.
84 T[illegible] S. Graves, Louisville.—p. 67.
85 Treatment of Diabetes Mellitus and Complications. H. A. Gilliam, M[illegible].—p. 71.
86 Gastric and Duodenal Ulcer. U. V. Williams, Frankfort.—p. 73.

Medical Record, New York

Feb. 9, 1918, **93**, No. 6

87 Some Therapeutic Considerations of Periodic Mental Depressions. L. P. Clark, New York.—p. 223.
88 Food, Classification of Foods; Preparation of Foods. F. F. D. *Reckord, Harrisburg, Pa.*—p. 229.
89 *Problem of Neurotics in Military Service. A. Gordon, Philadelphia.—p. 234.
90 Thyroid Disease and War. S. P. Beebe, New York.—p. 237.
91 Exaggerated Views About Contagion and Outcome of Pulmonary Tuberculosis. B. Robinson, New York.—p. 238.
92 *Sterilization and Purification of Water with Isotonic Sodium Hypochlorite Solution. W. G. Fralick, New York.—p. 239.

89. **Neurotics in Military Service.**—Gordon directs attention to the fact that types, varieties, and subvarieties of neurotics are many. While all are unfit for actual military work at the firing line, some of them nevertheless are capable of performing some duties of a nature different from fighting. A good number of them could be utilized for work of a secondary character behind the firing line and thus release the men who are more fit to face the enemy. A large contingent of good and strong men will thus be added to the fighting force. The home examining psychiatrist after a profound study of the recruit's personality will determine the variety of the neurosis and the degrees of its development, and will thus be able to make suggestions and recommendations to the military authorities as to the kind of work a given neurotic individual could be assigned to. A systematic plan can be worked out by which the examining psychiatrist will familiarize himself with the multifarious duties incidental to military service in wartime so as to be able to make the proper recommendation in behalf of those neurotic men who are not totally rejected.

92. **Purification of Water with Isotonic Sodium Hypochlorite Solution.**—Fralick has proposed and demonstrated the use of two chemicals for water purification in emergency outfits (Lister bags), so as to produce a safe water, entirely free from objectionable tastes and odors. To do this he has recommended the use of the isotonic sodium hypochlorite solution as a disinfection and the neutralization of the excess sodium hypochlorite by peroxid of hydrogen sodium hypochlorite + hydrogen dioxid = sodium chlorid + water + 20. while the effectiveness of this method had been repeatedly demonstrated at his laboratory, field tests under army conditions were conducted and the testimony of a number of sanitary experts obtained. There was a unanimous opinion expressed that water neutralized with the hydrogen dioxid

was entirely free from any objectionable or even noticeable taste or odor, while bacterial tests demonstrated its freedom from micro-organisms. In view of the disagreeable and probably injurious qualities of water disinfected with calcium hypochlorite, in emergency outfits (Lister bags), and in view of the fact that troops avoid drinking this water, Fralick recommends its discontinuance.

Medicine and Surgery, St. Louis

January, 1918, **2**, No. 1

93 Tetany and Parathyroid Glands. W. F. Koch, Detroit.—p. 9.
94 Function of Suprarenal Glands. T. Tieken, Chicago.—p. 18.
95 Treatment of Certain Forms of Asthma with Ovarian Substance and Corpus Luteum. M. Fishberg, New York.—p. 26.
96 Bit of Hormonology with Practical Applications. E. A. Tracy, Boston.—p. 35.
97 Clinical Endocrinology in General Practice. H. R. Harrower, Los Angeles.—p. 41.
98 Treatment of Goiter with Quinin and Urea Injections. L. F. Watson, Chicago.—p. 49.
99 Syphilis of Kidney. H. A. Fowler, Washington, D. C.—p. 54.

Michigan State Medical Society Journal, Grand Rapids

February, 1918, **17**, No. 2

100 Fractures of Skull; Report of Cases. L. J. Dretzka, Detroit.—p. 47.
101 Future of Medicine. W. H. Smith, St. Clair.—p. 52.
102 Etiology of Thyroid Hyperplasia. B. N. Epler, Kalamazoo.—p. 56.
103 Tics or Habit Spasm. D. Inglis, Detroit.—p. 58.

Missouri State Medical Association Journal, St. Louis

February, 1918, **15**, No. 2

104 Congenital Constrictions of Gastro-Intestinal Tract. O. F. Bradford, Columbia.—p. 39.
105 Protein Indigestion in Infant. J. Zahorsky, St. Louis.—p. 46.
106 Use of Roentgen Ray on Gastro-Intestinal Tract of Children. J. Aull, Kansas City.—p. 48.
107 Fractures of Humerus. R. A. Woolsey, St. Louis.—p. 50.
108 Pupil—from Ophthalmologist's Standpoint. H. D. Lamb, St. Louis.—p. 52.
109 Tooth Pulp Stones and Their Relation to Tic Douloureux. F. W. Brownfield, Chicago.—p. 53.

Modern Hospital, St. Louis

February, 1918, **10**, No. 2

110 Transformation of Dwelling House into Hospital. E. F. Stevens, Boston.—p. 75.
111 Economy in Management of Small Hospitals. W. Morritt, Colorado Springs, Colo.—p. 79.
112 Saranac Lake General Hospital, Saranac Lake, N. Y. H. L. Walker, New York.—p. 82.
113 Children's Clearing Bureau of New York. F. C. Brooke, New York.—p. 85.
114 Economical Isolation Hospital. H. B. Dox, Peoria, Ill.—p. 88.
115 Occupations for Outpatients at Massachusetts General Hospital. J. F. Bresnahan, Boston.—p. 90.
116 Small Hospital with Up-To-Date Features. J. E. Broyles, Kalamazoo, Mich.—p. 92.
117 Standardization of Hospitals—Classes, VIII, IX, X, XI, XII and XIII. J. A. Hornsby and others.—p. 95.
118 Kistler Memorial Home for Nurses of Lock Haven Hospital. C. Happersett and L. H. Rush, Philadelphia.—p. 101.
119 Control of Exercise in Pulmonary Tuberculosis. H. L. Staring, Valmora, N. M.—p. 104.
120 How Small Hospital May Give High Grade Service. F. W. Shelton, Independence, Kan.—p. 112.
121 Individualty of Mentally Defective Persons. H. MacMurchy, Ontario, Canada.—p. 113.
122 Some Hindrances to Adoption of University Standard in Small Hospitals. C. M. Perry, Malden, Mass.—p. 117.

New Orleans Medical and Surgical Journal

February, **70**, No. 8

123 *Some Principles of Anthelmintic Medication. M. C. Hall, Detroit.—p. 637.
124 Fate of Ova of Ankylostoma Ingested by Larvae of Musca Domestica. P. L. Querens, New Orleans.—p. 653.
125 Excessive Feeding Cause of High Per Cent. of Infant Mortality. J. B. McMahon, De Ridder.—p. 655.
126 Chancre of Nipple. Carotid Body Tumor. Ruptured Rectus Femoris Muscle. Chronic Myositis. Dislocation of Sternal End of Clavicle (Forward). Fracture of Surgical Neck of Humerus. Dichloramin-T. Splints. I. Cohn, New Orleans.—p. 657.
127 Theory of Ge[illegible] of Yellow Fever. E. M. Albers, Galveston, Texas.—p. 663.

123. **Principles of Anthelmintic Medication.**—Hall points out that anthelmintics are selective in their action; at least their dependable effectiveness is limited to certain sorts of worms. Certain kinds of worms require not only a suitable anthelmintic, but also suitable modes of medication, whereas other worms only require the simple administration of a single therapeutic dose of a suitable drug. Forms like the ascarids, which inhabit the small intestine and lie unattached in the lumen, are readily accessible to the ordinary types of anthelmintics. Forms like the hookworm, which attach for indefinite periods to the intestinal mucosa and occasionally detach and remain free in the lumen of the intestine for a time before attaching again, show a response to anthelmintics which may perhaps be correlated with this habit of attaching and detaching. Forms like the whipworm, located for the most part in the cecum, are apparently not always exposed to the action [illegible]
potent drugs [illegible]
using alcohol a[illegible]
are frequently unsuitable as anthelmintics. [illegible]
preparations are often rapidly absorbed, largely in [illegible]
stomach and duodenum, occasioning more or less irritation at the point of absorption and producing systemic effects of a more or less toxic nature. The considerable [illegible]
absorption leaves a comparatively [illegible]
available for actual anthelmi[illegible] F. Petersen, Chicago.—p. 273.
token leaves the minimum [illegible]l's Disease (Spirochaetosis Ictero-
removed by purgation [illegible] Y. Ido, R. Hoki, H. Ito and H.
Anthelmintics [illegible]chaeta Icterohemorrhagiae in Organs after
insoluble as th[illegible] Serum Treatment. R. Kaneko and K. Okuda,
[illegible]305.
There are t[illegible] Experiments with Rosenow's Antipoliomyelitic Serum.
the rate of [illegible]oss and F. Eberson, New York.—p. 309.
absorption and [illegible]
toxic drugs as [illegible]ion of War Wounds.—Some hypothetical con-
that the brunt [illegible]g on the evolution of cicatricial tissue are
borne by a [illegible]uffier and Desmarres. The arterial circulation
a large amount [illegible]ound chemical substances necessary for con-
in over the [illegible]
that of the upper jeju[illegible] that what is desired in anthelmintic administration is, first, as little absorption as possible, and second, since there must be some absorption, probably a large amount as a rule, it is desirable to retard that absorption in order to distribute it over as large a surface of the gastro-intestinal mucosa as possible and to allow the maximum time for the body gradually to dispose of the drug by oxidation and elimination. Some anthelmintics do not need to be allowed "time to act" on the worms before purgatives are administered. The above proposition is stated tentatively. Preliminary fasting is important. Gastric stasis might occasionally interfere with the efficacy of anthelmintics. The passage of worms following anthelmintic treatment is a better indication for repeating or continuing treatment than for stopping treatment. Severe helminthiasis calls for caution in administering anthelmintics. While the majority of worms passed after anthelmintic treatment come away in the first twenty-four hours after treatment, there is a fairly large percentage which will commonly come away from one to six or seven days later.

New York Medical Journal

Feb. 9, 1918, **107**, No. 6

128 Vertigo. C. Graef, New York.—p. 241.
129 Wandering Dropsical Gallbladder; Report of Case. J. L. Amster, New York.—p. 244.
130 *Raynaud's Disease. G. Rubin, Chicago.—p. 246.
131 Kidney Infection as Result of Pyorrhea. F. S. Crockett, LaFayette, Ind.—p. 247.
132 Safeguards in Manufacture of Explosives. W. G. Hudson, New York.—p. 248.
133 *Blood Pressure in Head Injuries. H. M. Armitage, Chester, Pa.—p. 250.
134 Analysis of Seven Cases of Friedreich's Ataxia. M. Osnato, New York.—p. 255.

130. **Raynaud's Disease.**—Rubin cites a case treated by him with vaccines. The injections were made every fourth day, given subcutaneously and in varying locations in arms, thighs and back. A small Luer syringe with a twenty-four gage needle was used. At the eighth injection of the vaccine, at the instant the needle was plunged into the skin, at about the level of the sixth dorsal vertebra and about 2 inches to the right of the spinous processes, the skin blanched to almost

snow whiteness, extending to the left of the spinous processes; the appearance was almost symmetrical, except that the area to the left of the spinous processes was somewhat larger than that to the right. The whole area was about 10 cm. across and 7 or 8 cm. vertically. The patient felt a sharp stinging pain not experienced on previous occasions. The ischemia was still present when the patient left the office a half hour later. The following day the area assumed a dark purple hue and the patient complained of severe burning pain and being kept awake all night. It was then evident that the case was one of angioneurosis and from general indications it corresponded unmistakably to the Raynaud's symptom complex variety. With the exception of the site it was a classical
[illegible] continued for
[illegible] The skin and
[illegible] were destroyed.

[illegible] Pressure in Head Injuries.—According to Armitage blood pressure readings are only of negative value in head injuries where compression of the brain with medullary involvement has not occurred. In severe fractures of
[illegible] widespread hemorrhage, blood pressure read-
77. Oxygen in Veno[illegible] other fractures of the skull with
latory Disturbances.—This [illegible]volvement, blood pressure read-
of the oxygen unsaturation of [illegible]ortant symptoms, but con-
with incompensated heart diseases. [illegible] the systolic pressure
unsaturation within normal limits were [illegible] asure in deter-
circumstances: (*a*) in a stage of full [illegible] ain and aiding
(*b*) in a stage of incompensation in whic[illegible]ration. These
were rapidly lessening. Values above the [illegible]are is propor-
extreme were met with under three circumst[illegible]ion of the brain
ing incompensation. (*b*) during compensatio[illegible]igher the pulse
clinical symptoms of incompensation had de[illegible]r compensation
at times in patients with auricular fibrill[illegible]lse pressure
dition of complete and stable compensati[illegible] case until finally
[illegible] pulse rate and
when this has occurred compression has always been present. It would be folly, however, to wait deliberately for this phenomenon to occur before operating in cases in which a proportionately high pulse pressure was rising and the pulse rate falling. The choice whether or not a patient should be trephined must be made with a moderation of counsel and temperateness of judgment. Under such circumstances the final decision must always be formed from the study of the entire group of symptoms; the most important one is the frequent estimation of the pulse pressure in its relation to the pulse rate and systolic and diastolic pressures.

Oklahoma State Medical Association Journal, Muskogee

February, 1918, **11**, No. 2

135 Acidosis and Recent Methods of Demonstrating It. O. J. Walker, Oklahoma City.—p. 41.
136 Tonsillectomy by Modification of Sluder Technic. E. F. Stroud, Tulsa.—p. 51.
137 Acute Suppurative Otitis Media. W. A. Cook, Tulsa.—p. 54.
138 Iridocyclitis Due to Focal Infection from Tooth; Report of Case. L. M. Westfall, Oklahoma City.—p. 61.
139 Is the Middle Turbinate Bone Essential? L. C. Kuyrkendall, McAlester.—p. 65.
140 Medical Nomenclature. H. B. Gwin, Tulsa.—p. 67.

Ohio State Medical Journal, Columbus

February, 1918, **14**, No. 2

141 Local Infection as Causative Factor in Production of Duodenal and Gastric Ulcer. W. D. Haines, Cincinnati.—p. 77.
142 Classes for Conservation of Vision in City Public Schools. R. B. Irvin, Cleveland.—p. 81.
143 Care of Perineum During Second and Third Stages of Labor. J. P. Gardiner, Toledo.—p. 83.
144 Factors to Be Considered in Treatment of Pelvic Infections. L. G. Bowers, Dayton.—p. 85.
145 Interpretation of Wassermann Test. T. Zbinden, Toledo.—p. 87.
146 Some Contraindications for Certain Gynecologic Operations. M. J. Longsworth, Lima.—p. 90.
147 An Outline of Health Survey. J. A. Tobey.—p. 93.

Rhode Island Medical Journal, Providence

February, 1918, **2**, No. 2

148 Poliomyelitis, Anterior, Pathology, Symptoms, Indications and Treatment. W. B. Snow, New York.—p. 17.
149 Value of Speech Reading for Adult Deaf. M. A. Durfee, Providence.—p. 26.

Southwestern Medicine, El Paso, Texas

February, 1918, **2**, No. 2

150 Case of Mitral Stenosis and Left Recurrent Paralysis. M. P. Schuster, El Paso.—p. 1.
151 Value of Careful History in Treatment of Chronic Digestive Disorders and Necessity of Postoperative Medical Treatment. E. C. Prentiss, El Paso.—p. 10.
152 A Little Mexican Medicine. B. Smith, Douglas, Ariz.—p. 14.
153 *Anomaly in Location of Terminal Ileum; Report of Case. F. T. Wright, Douglas, Ariz.—p. 17.
154 Obscure Fevers of Infancy and Childhood. J. A. Rawlings, El Paso.—p. 19.
155 Thrombosis of Mesentery; Report of Case. H. A. Miller, Clovis, N. M.—p. 25.

153 **Anomaly in Location of Terminal Ileum.**—In a man who had died following an operation for what had been diagnosed as chronic appendicitis, the following arrangement of the cecum and terminal portion of the ileum was found by Wright. The cecum was located in its normal place in the abdominal cavity. It was, however, as though rotated on its longitudinal axis about 180 degrees, so that the base of the appendix presented on the anterior and external aspect instead of on the inner and posterior. The ileum joined the cecum on its outer side, and, instead of running thence toward the middle of the abdominal cavity, ran directly outward and a little downward to the external abdominal wall, a distance of perhaps 3 inches. This portion of the ileum was provided with a mesentery which became shorter as the abdominal wall was approached and finally disappeared. When the ileum reached the abdominal wall it disappeared behind the peritoneal layer, and ran directly downward for about 4 inches, completely covered all the way with peritoneum, and intimately adherent to the subjacent tissues. It then emerged from behind the peritoneum, turned directly inward and upward, acquired a mesentery, and became, so to speak, its usual part of the normal abdominal contents. There was no indication that this condition was the result of any inflammatory process. This retroperitoneal portion of the ileum simply came over to the abdominal wall, lost its mesentery, disappeared in a tunnel beneath the peritoneum, emerged, acquired a mesentery, and proceeded back into the abdominal cavity where it belonged. The retroperitoneal portion was of decidedly smaller caliber than the adjacent portions.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October-December, 1917, **14**, No. 166-168

1 Ten Years' Experience of Ringworm in Public Elementary Schools. J. Priestley.—p. 241.
2 *Mental Deficiency and Binet-Simon Tests. J. Priestley.—p. 250.
3 *Cervical Glandular Enlargement in Children, as Evidence of Infection. E. B. Gunson.—p. 255.
4 Infantile Paralysis. S. G. Dixon.—p. 260.
5 Two Cases of Meningococcal Infection: Cultivation of Meningococcus from Serum of Vesicle in One of the Cases. A. Netter, M. Salanier and Blanchier.—p. 264.
6 Mongolism Associated with Congenital Cataract. F. P. Weber.—p. 267.
7 Congenital Heart Disease in Mentally Defective Child, with Negroid Mongoloid Facies. F. P. Weber.—p. 269.
8 Congenital Hirsuties in Child. F. P. Weber.—p. 272.
9 Case of Congenital Umbilical Hernia, Ectopia Vesicae and Imperforate Anus. F. C. Pybus.—p. 274.

2. **Mental Deficiency and Binet-Simon Test.**—According to Priestley the Binet-Simon tests have a value as a means of grading mentality especially as a rough-and-ready way of checking from a slightly different angle the opinion of the child's teacher. But, Priestley says, he never would be disposed to press the Binet-Simon results against the considered judgment of an experienced teacher who had had the child under observation for some months. The value of the tests as an aid in detecting mental deficiency is much more open to doubt. The tests certainly afford convenient standardized openings for conversation, during which one can observe the child's method of mental response, and the method of answering is generally a good deal more illuminating than the correctness or incorrectness of particular answers. So far they are useful, but as to considering every child defe[illegible] who has a mentality three years behind its nominal -

would be a highly dangerous rule, and is out of the question. Priestley cannot recall a single case in which the Binet-Simon tests helped him to decide when he was in doubt before; the tests are ineffectual in cases in which they are not superfluous.

3. **Glandular Enlargement as Evidence of Infection.**—The symptoms presented by the adolescent patients examined by Gunson with symptoms suggesting cardiac disease, but who presented no signs of such disease or of disease in other symptoms, apart from the fauces were chiefly lassitude, exhaustion and breathlessness on slight exertion. In the majority of the cases no history of immediately preceding infection was obtained and the children were frequently brought to the hospital because the mother considered that there was something wrong with the child. The chief abnormal signs presented by many of these patients were slight or moderate enlargement of the upper deep cervical glands, associated with tonsillar enlargement in many cases; in others with faucial injection only. Such children not infrequently were poorly developed, with deficient expansion of the upper chest, but no demonstrable signs of pulmonary disease were present.

An investigation into the state of the cervical glands during the course of scarlet fever revealed several points of interest. One hundred consecutive children were observed throughout their stay in the hospital. Ninety-seven cases were mild, three cases were septic. Of the mild cases all patients recovered; one of the septic patients died on the thirty-fourth day. Ninety-one cases on admission presented enlargement of the tonsils and injection of the fauces. In nine cases there was no enlargement of the tonsils and in three cases the fauces were apparently normal. One patient, in whom tonsillectomy had been performed a few weeks before admission, had injected fauces; in this patient the tonsillar glands were enlarged.

Gunson says that while glandular enlargement is evidence of an infective process situated in the lymphoid tissue specifically drained by such glands, simple chronic glandular enlargement in young children is associated with malnutrition and alimentary and respiratory disorders. When the glandular enlargement persists into adolescence, or develops, these patients suffer from apathy, exhaustion, and dyspnea on slight exertion. The symptoms are sufficiently severe to suggest cardiac disease, which careful examination fails to reveal.

British Journal of Tuberculosis, London

January, 1918, **12**, No. 1

10 Tuberculosis and War: Prevention is Better than Cure. L. Cobbett.—p. 16.
11 Tuberculous Army Recruit. P. J. Gaffikin.—p. 20.
12 Tuberculosis and Ministry of Health. W. H. Dickinson.—p. 22.
13 Future of Antituberculosis Campaign. T. E. Nuttall.—p. 26.

Dublin Journal of Medical Science

January, 1918, **145**, No. 553

14 Acute Troubles of Bones. J. S. McArdle.—p. 1.
15 Some Preliminary Points in Diagnosis of Amebic Dysentery. J. Speares.—p. 6.
16 Complications of Scarlatina. W. S. Boyd.—p. 12.

Journal of Laryngology, Rhinology and Otology, London

January, 1918, **33**, No. 1

17 Value of Endorhinoscopic Examination. M. Yearsley.—p. 1.
18 Primary Tuberculosis of Faucial Tonsils in Children. A. P. Mitchel.—p. 8. To be continued.

Lancet, London

Jan. 19, 1918, **1**, No. 4925

19 Cerebrospinal Fever in Royal Navy. H. D. Rolleston.—p. 87.
20 Grouping of Meningococci into Types. P. Fildes and S. L. Baker. —p. 92.
21 *Study of P. U. O. (Pyrexia of Unknown Origin). W. Pasteur and B. Hudson.—p. 94.
22 Localization and Removal of Foreign Bodies by Combined Method of Radioscopy and Operation. R. Knox.—p. 96.
23 Treatment of Staphylococcal Infections by Stannoxyl, Furunculosis and Acne. A. Compton.—p. 99.
24 Case of Splenomegaly Treated by Splenectomy. G. R. Footner and R. G. Archibald.—p. 101.
25 Muscular Rheumatism; Its Diagnosis and Treatment by Physical Means. F. Radcliffe.—p. 102.
26 Bomb Wound of Abdomen. D. P. D. Wilkie.—p. 103.
27 Case of Threatening Sepsis of Knee-Joint Aborted by Injection of Flavine. W. H. Hillyer.—p. 103.
28 Case of Cutaneous Anthrax in Man Presenting Multiple Lesions. W. T. G. Davidson.—p. 104.

21. **Study of Pyrexia of Unknown Origin.**—Pasteur and Hudson suggest that the featureless aspect of so many cases diagnosed as P. U. O. may be just because they are the clinical expression of smoldering bacterial infections which have failed to become fully alight (active) and thereby more individualized and recognizable in their outward expression.

Archives de Médecine des Enfants, Paris

September, 1917, **20**, No. 9

29 *Pneumococcus Invasion in Course of Meningococcus Meningitis. A. Netter and M. Salanier.—p. 449.
30 Hair Ball in Stomach of Girl of Thirteen. J. S. Dauriac.—p. 465; Ditto in Girl of Four. A. Broca.—p. 468.
31 Primary Cancer of Liver in Girl of Eleven. De Saussine and Others.—p. 472.
32 Recent Publications on Latent Otitis in Infants. J. Comby.—p. 476.

29. **Secondary Pneumococcus Infection in Meningococcus Meningitis.**—Netter and Salanier have encountered this association in five children among twenty-nine with epidemic meningitis. They have learned of other cases and here analyze a total of 22, with fatal outcome in all but 3 cases. The superposed infection usually developed when the meningococcus seemed to be under control. The pneumococci evidently penetrate from the nasopharynx to the meninges, and they seem to be able to destroy the meningococci already installed. The proper antimeningococcus serum is indicated, and, equally important, antipneumococcus serum should be given when the pneumococcus infection supplants the other. The children who recovered were those who had been given preventive injections of the antipneumococcus serum.

Archives de Médecine et de Pharmacie Militaires, Paris

June, 1917, **67**, No. 6

33 *Chronic War Osteomyelitis. H. L. Rocher.—p. 717.
34 The Surgical Neurologic Center. C. Villandre.—p. 739.
35 *Crippling of the Hands. Daussat.—p. 763.
36 Fractures of the Crest of the Ilium. V. Planson.—p. 776.
37 *Diphtheria among the Troops. Labit.—p. 779.
38 *Cerebrospinal Meningitis. G. Laroche.—p. 788.
39 The Trapezius Sign in Pulmonary Tuberculosis. M. Loeper and H. Codet.—p. 812.
40 *Test Glycemia. M. Loeper and G. Verpy.—p. 817.
41 Operating and Roentgen Table. A. M. Fabre.—p. 824.
42 Frame for Suspension and Extension of Fractured Limbs. L. Bois.—p. 831.
43 *Test for Occult Blood. Thévenon and Rolland.—p. 850.

33. **Chronic Osteomyelitis.**—Rocher discusses in turn the various conditions liable to be encountered with osteomyelitis early or later after a war wound, and the measures to be applied. The nerve and other possible complications are also reviewed. When the callus is painful, there is great probability that there is latent infection. There is no specific treatment for osteomyelitis. Healing depends not only on a perfect and complete operation but also on the care and vigilance with which the focus is tended until definite healing. In smaller bones, like the ulna and fibula, cicatrization may be complete in two months, but with the femur, tibia and humerus three or four months may be required for this. Bone tissue is very slow in regenerating and seems to have the least power of defense against infection, hence healing is slow and reinfection facile. The dressings after operative treatment of osteomyelitis should be changed only by physicians familiar with bone surgery or nurses trained in the required care and skill. Inexpert change of dressings may undo all that has been accomplished. The chronic fistulas so common in the hospitals are due not only to incomplete and defective operative intervention but also to inexpert after-care.

35. **Crippled Hands.**—Daussat analyzes his experience with 2,750 wounded, of whom 50 per cent. had been wounded in the arms or hands. He discusses how the various degrees of crippling incapacity can be enumerated and classified. A nomenclature is proposed with graphic abbrevations both for anatomic and functional disabilities.

37. **Prophylaxis of Diphtheria among the Troops.**—Labit reports the results of treatment of bacilli carriers among the troops of the "ninth region." Diphtheria has always been endemic in this section, and at the outbreak of the war the troops gathering there soon developed cases. When four laboratories were installed with movable isolation barracks, the infection was brought under better control and the number of cases dropped from 1,450 in 1915 to 463 in 1916 and 110 in the first six months of 1917. The deaths totaled 26, 4 and 2 during these years. The proportion of carriers in the environment of cases of diphtheria averaged 28.9 per cent. but frequently surpassed 50 per cent. He found it impossible in the same building with cases of the disease to free the carriers effectually of bacilli. He consequently rented quarters at quite a distance from the barracks, and the carriers were kept there until three examinations at a week's interval gave negative findings. At Poitiers the men thus isolated were in a building with large gardens which they cultivated for their own profit. In some of the barracks, existing separate buildings were used; and houses where there had been cases of diphtheria were sometimes used for isolation of carriers. The same measures were applied to civilians as well as to the soldiers. Contaminated rooms are left open to the sun and air to the very longest period it is possible to keep them unused. In the diphtheria hospitals, special rooms are set apart for the examination of those entering, for those with mild diphtheria, for the grave cases, for convalescent carriers, and for the convalescent noncarriers. He sends to the hospital for bacteriologic examination every soldier with sore throat, and every man leaving for the front is so examined. He keeps back those with suspicious findings. Despite these precautions, men are occasionally set back from the front with diphtheria, or carriers, as a man may become a carrier at any moment when occasion presents. He found nineteen carriers among the nurses and male attendants at one surgical hospital unit when a case of diphtheria had developed. He regards the prompt sending to the hospital for bacteriologic examination of every man with sore throat of any kind as a most important element of the prophylaxis. Only when the physicians in the section cooperated effectually in this were the desired results obtained in larger measure. He does not mention the technic used for sterilizing the throat, but states that the inveterate chronic carriers impossible to free from their bacilli were kept in the hospitals, some staying there for several months.

38. **Epidemic Meningitis.**—Laroche reviews the experiences that have been published to date regarding the application of local serotherapy directly into the lateral ventricle since Cushing and Slaven ventured this in two cases in 1908. He then reports two cases from his own practice with recovery of one of the two young men. He suggests that the best technic for direct intraventricular injection of the antiserum may be learned on children as the fontanel facilitates puncture of the ventricle. One always hesitates before an operation on the adult skull with the man so sick as with meningitis. Laroche regards Cushing's temporal flap method as complicated and useless. He and Ramond trephine at a point 3 cm. below the median line and 3 cm. in front of the bregma. The needle is one designed for lumbar puncture, with a stout guide. It is pushed in for 4 or 5 cm., the tip pointed toward the opposite ear. If no fluid emerges, he withdraws the needle entirely and introduces it in another direction. Successive punctures do no harm to the brain, he reiterates, but if the tip were worked to and fro or around in the depths, the white fibers of the brain would be lacerated. The danger from puncture of the ventricle is *minimal*; the point selected avoids large arteries or the sinus. Some arteriole or small vein might be injured, of course; it might be well to use a needle with a rather blunt tip which would push the arteriole out of the way instead of cutting it. The amount of antiserum injected should not be over two-thirds of the amount of fluid withdrawn. A preliminary small injection by Besredka's technic serves to ward off anaphylaxis. Indications of sensitization to the serum call for great caution. If antiserum precipitins are found in the cerebrospinal fluid, it might be wise to vaccinate the patient according to Ramond's method. He mixes in vitro 6 c.c. of the antimeningococcus serum with 3 c.c. of the tyndallized cerebrospinal fluid, and injects the whole subcutaneously two days before he resumes the antiserum treatment. The danger of sensitization is another argument in favor of early trephining puncture before phenomena of sensitization can develop.

40. **Test Glycemia.**—Loeper and Verpy state that in epinephrin we have a means of estimating the power of the liver to transform glycogen into glucose just as we can test with alimentary glycosuria its power of forming glycogen. With epinephrin we can induce as it were an alimentary glycemia. They inject into the thigh 1 mg. of active epinephrin. In half an hour the blood shows, on an average, 0.73 gm.; in one hour 0.43 gm., and in three hours 0.24 gm. In a normal person there is an increase of about 0.40 gm. by the end of the first hour. This is the standard taken for the test. In twenty-two men with acute or chronic liver disease, the epinephrin glycemia was found exaggerated in cases of acute irritation of the liver and notably subnormal in cases of defective liver functioning. The disappearance of the glycemia in the course of liver disease is a sign of aggravation, and may indicate a speedily fatal outcome. If the epinephrin glycemia varies in the course of a stomach, bowel or nervous disease, this shows that the liver functions are becoming depressed also.

43. **Test for Blood in Body Fluids and Stools.**—The test described is based on the change of tint of pyramidon when brought in contact with oxidizing substances. The reagents are (1) a solution of 2.5 gm. pyramidon in 50 c.c. of alcohol (90 degrees), and (2) a solution of 1 c.c. of crystalline acetic acid in 2 c.c. of distilled water. To 3 or 4 c.c. of urine are added the same volume of the pyramidon solution and six or eight drops of the acetic acid solution. To this mixture are now added five or six drops of hydrogen dioxid at 12 volumes. The tint changes instantaneously to violet if there is much blood present, and even if there are only traces the reaction occurs within fifteen minutes, the bluish violet tint reaching its height and then disappearing. In examining feces, a small lump is triturated with 3 or 4 c.c. of distilled water and filtered. To the filtrate are then added 3 or 4 c.c. of the acetic-pyramidon reagent and then six drops of the hydrogen dioxid, and the whole is agitated. The tint changes to a bluish violet in proportion to the amount of blood present. Thévenon and Rolland state that they have applied this test to various body fluids and stools, with parallel phenolphthalein tests according to Meyer's technic. The tests gave invariably the same results. The pyramidon test is thus equally sensitive while it is simpler, the reagents keep well, and the test can be applied indiscriminately to various body fluids.

Le Nourrisson, Paris

September, 1917, 5, No. 5

44 Functional Disturbances with Digestive Disease in Infants. A. B. Marfan.—p. 257.
45 *Infant Welfare Work in Belgium. R. van Roy.—p. 267.
46 Calculi in Prepuce of Small Child. Ramaroni.—p. 270.
47 *Modification of Cow's Milk for Infants. A. B. Marfan.—p. 272.

45. **Welfare Work for Infants in Belgium.**—Van Roy states that in no other country is the system of infant consultations so extensively applied as in Belgium. He is convinced, he says, that four-fifths of the pediatrists of Belgium have an office for giving free advice to infants. They usually have two or three rooms equipped for the purpose, apart from their regular office, a waiting room, the room in which the children are undressed and weighed and the consulting room. Each infant has its card, and a nurse helps to weigh the children. This is usually some charitable volunteer. All the hospitals have these free consultations. At Antwerp the "Associated Charities" has five in different parts of the city and prospective mothers are visited and looked after. Milk and gruels are distributed, and the infant mortality of Antwerp is exceptionally low.

47. **Modification of Cow's Milk for Infant Feeding.**—Marfan gives the history of efforts in this line by various pediatrists in different countries. The practice he has f[illegible]ost advan[illegible]tageous is to give milk [illegible]d half [illegible]oiled w[illegible]

sweetened to 10 per cent. the first days, and two-thirds milk to one-third sweetened water during the first four months, and after this three-fourths to one-fourth. If the child is thriving, then pure milk sweetened a little can be given. If digestive disturbance develops, he returns to the one-fourth or one-third mixture. When these modifications are well mixed and well sterilized, most healthy infants digest them perfectly. Constipation is less than with pure sterilized milk; the stools are softer and yellow, although not quite like those f the breast-fed. Vomiting is as rare as diarrhea. The ildren do not gain in weight as fast as the breast-fed, but e difference is not great, and it is soon made up, thanks to the soundness of the digestive tract, when the time comes for the pure milk. The water used is not sweetened at all during the first week; after that it is sweetened with saccharose. The water is boiled for two or three minutes and the sweetening added while it is boiling. If the sterilization is done in a water bath, the milk and the sweetened boiled water can be mixed beforehand. He prefers to have only half the daily quantity of the sweetened water prepared at one time.

Presse Médicale, Paris

Dec. 27, 1917, **25**, No. 72

48 *Suture after Suprapubic Prostatectomy. V. Pauchet.—p. 729.
49 *The Oculocardiac Reflex. A. Mougeot and Duverger.—p. 730.
50 Transportation with Fractured Femur. E. Pouliquen.—p. 732.

48. **Closure of the Suprapubic Wound after Prostatectomy.**—Pauchet describes his technic with which complete healing within twenty days can almost be guaranteed. A Marion drain is left in the wound for nine days. Then a retention catheter diverts the urine through the urethra for three days. Then the wound is sutured, and the retention catheter introduced again and left for eight days. The twenty-first day this catheter is removed and also the suture threads. He takes two U catgut sutures in the bladder wall, enclosing both lips of the wound but not entering the mucous membrane lining of the bladder. After these are drawn tight and tied separately, he passes three silkworm gut sutures. The needle enters the rectus muscle, skips twice through the outer layer of the bladder wall, and then passes through the rectus muscle on the other side. Then each end of the silkworm gut is crossed back and brought out through the skin on the side of the incision where it first entered. One such suture is taken directly across the suture in the bladder wall, and the two others just above and below this. The skin is coaptated with clips and a roll of gauze is laid over this. Then the ends of the three figure 8 sutures are tied tight separately over the gauze.

The various steps of the suture are illustrated. The urine clears up spontaneously afterward or after rinsing a few times with a silver salt. If there is a diverticulum in the bladder there may be slight pyuria for some time. Removal of the hypertrophied prostate is often surprisingly simple and easy, but sometimes it is difficult to locate the exact plane of cleavage on account of multiple adenomas, or inflammation in and around the prostate. Considerable skill is necessary in such cases to clear out all the débris of the prostate and leave a cavity smooth to the touch. Unless this is done, healing may be delayed. It is difficult to carry through a long series of prostatectomies without such mishaps occasionally. Pauchet has done 477 prostatectomies and has had no death in his last series of 40, although he has widened the indications and operates now in even very grave cases. Almost the only contraindications he now accepts are the clearly insufficient heart (shortness of breath, edema) or much altered kidneys. When there is the least doubt as to the resisting powers, the functional capacity of the kidneys or the asepsis of the urine, he does the operation at two sittings, and the prognosis has been singularly improved since he has been doing this. Between the two steps of the operation the patient leads his usual life, goes out of doors, but restricts his diet to fruits, vegetables, rice, potatoes and butter, avoiding nitrogenous food as much as possible. After he has been at home for a few weeks or months, and the surgeon estimates that he has regained sufficient resisting powers, then the date of the secondary prostatectomy can be fixed.

49. **Bradycardia and the Oculocardiac Reflex.**—Mougeot and Duverger discuss the paradoxic behavior of the oculocardiac reflex in the wounded. In sixty cases of total sinusal vagotonic bradycardia of nontraumatic origin, the reflex was normal or exaggerated, with one exception. In this exceptional case there was no reaction to amyl nitrite. Their experience has shown further that bradycardia following an accident to the eye, skull or brain is always total, sinusal, and of vagotonic origin . Among 190 men wounded in the eyes, five developed bradycardia, probably from the concussion. The mechanical influence of the hypertension of the cerebrospinal fluid in cases of concussion is sufficient to explain the bradycardia and the abolition of the oculocardiac reflex in such cases. If the oculocardiac reflex appears again after trephining has restored the tension to approximately normal, then the disturbances are probably only functional and speedy recovery may be counted on. But when the oculocardiac reflex is persistingly abolished when tested at once after the evacuating puncture, we must accept some lesion, probably in the anastomosing fibers discovered by Ramon y Cajal between the descending sensory root of the trigeminal nerve and the original intrabulbar fibers of the pneumogastric nerve. This was demonstrated in one of the cases reported.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 22, 1917, **47**, No. 51

51 *The Defensive Ferments. E. Abderhalden.—p. 1745.
52 *Influence on the Heart of Chronic Action of Camphor. H. E. Sigerist.—p. 1748; T. Zangger.—p. 1752.
53 The Cremaster Reflex with Sciatica. A. Rodella.—p. 1753.
54 Exhaust Gas Garage Poisoning. H. v. Meyenburg.—p. 1761.

51. **Present Status of the Protective Ferments and the Abderhalden Reaction.**—Abderhalden declares that thousands of careful tests have confirmed the diagnostic importance of the protective ferments found in the blood after introduction of foreign cell substance. Each kind of cell has certain special functions and hence a special structure, and certain elements in each kind of cell are foreign to other kinds of cells; besides this, each unsplit-up cell getting into the blood is a foreign substance. Ferments are produced to get rid of these cell-foreign and blood-foreign substances, and these protective ferments play an important rôle. We know, for example, that the fibrin in the alveoli of the lung in pneumonia is disintegrated and prepared for adsorption by ferment action, and stout adhesions disappear by the same action. In addition to the polariscope and dialysis methods for demonstration of these protective ferments, the stain or metal method of investigation has been tried. The organ tissue under examination is treated with a stain or with iron—which is not found in normal blood plasma. If iron is found in the blood serum after it has been in contact with organ tissue artificially impregnated with iron, then the assumption follows that the iron has been set free by the action of some ferment. This is the basis of Kottmann's test for pregnancy. He treats protein with iron. Under the influence of ferment action the iron passes into the fluid. When placenta, ovary or testicle tissue is used for the test, the serum of pregnant women causes the appearance of the iron in the fluid while ordinary serum does not. Abderhalden comments on this that it is merely a modification of the previous methods for demonstrating the protective ferments; he says that it is not, as claimed, a "new pregnancy reaction." [In his communication on the subject in the *Correspondenz-Blatt für Schweizer Aerzte*, 1917, **47**, 377, Kottmann stated that patents had been applied for in several countries for this "iron placenta" as a test for pregnancy, and for the method of "iron organs" in general.] On the other hand, Abderhalden says that P. Hirsch's interferometer is based on a new principle for demonstrating the protective ferments, and that it seems to be very promising. It confirms anew the specificity of the protective ferments. [Hirsch's article "Die interferometrische Methode zum Studium der Abwehrfermente" appeared in *Fermentforschung*, 1914, **1**, 33.]

Abderhalden adds that further progress has been realized recently by F. Pregl and de Crinis by their research on the refracting powers of the serum before and after it has been acting on organ tissue. They found that the action of the protective ferments could be clearly and decidedly recognized with the refractometer. They worked out a technic for this which requires only a minimal amount of serum, and the method thus becomes, Abderhalden remarks, "a micro-Abderhalden reaction." A few drops of serum suffice, and they can be used for different proteins. "If this method answers its promise, it is bound to be the technic for the future in all such research." Their communication on the subject is credited to *Fermentforschung*, 1917, **2**, 58. [Both Abderhalden and Kottmann have suggested that active immunization might be realized by administration of serums rich in defensive ferments in treatment of cancer, etc., and each mentions proprietary preparations designed for this purpose.]

52. **Action of Camphor on the Heart.**—Sigerist reports that the long continued administration of camphor to rabbits did not seem to impair in any way the functioning or the structure of the heart, but rather to increase its functional capacity. But it did not render the heart more resistant to phosphorus poisoning or to diphtheria toxin, and did not aid in throwing off the effect of either.

Zangger relates that he has found small doses of camphor very useful in keeping up the tone of the heart with chronic myocarditis. During the acute phases, digitalis or other tonics are needed, but when the heart settled down to a chronic course, ten or fifteen drops of the usual spirit of camphor, two or three times a day for months at a time, seemed to aid materially in keeping up the balance of the heart. He has thus treated more than 100 patients, over 65 with chronic myocarditis, and describes some of the typical cases in detail. He gave the camphor on sugar or in water.

Gazzetta degli Ospedali e delle Cliniche, Milan

Dec. 9, 1917, **38**, No. 98

55 *Plastic Operation for Wounds of the Superior Longitudinal Sinus. O. Ortali.—p. 1293.

Dec. 20, 1917, **38**, No. 101

56 Cholecystotomy in Typhoid Bacilli Carrier. N. Federici.—p. 1330.

Dec. 23, 1917, **38**, No. 102

57 *Electric Reeducation of the Muscles. L. de Lisi.—p. 1340.

Dec. 27, 1917, **38**, No. 103

58 Paratyphoid Genito-Urinary Lesions. F. Bergolli.—p. 1355.

55. **Plastic Operation on Superior Longitudinal Sinus.**—Ortali gives an illustrated description of a war wound involving the vertex in which he twisted a pedunculated flap from the epicranial aponeurosis around to cover the breach. It proved effectual in staunching the hemorrhage while not obstructing the permeability of the vessels. The man died later and the necropsy showed that the flap had answered its purpose perfectly.

57. **Motor Reeducation.**—De Lisi's method consists in electric stimulation of the antagonist muscles in treatment of contracture and paralysis after war wounds. He uses the faradic current with an interrupting metronome to break the current rhythmically, the whole arranged so that the patient can walk to and fro in a certain space. The aim is to have him step synchronously with the metronome, so that the current reaches the group of muscles and nerves just at the moment when they start to contract and the antagonists start their contrary action. The patient soon learns to step with the proper rhythm, guided by the metronome. The sensation induced by the current aids in giving confidence, while the metronome gives a feeling of reliance. The method is proving very effectual in his service for nervous affections in the wounded.

Pediatria, Naples

January, 1918, **26**, No. 1

59 *Cholesterol in the Blood. S. di Stefano.—p. 1.
60 *Aspect of the Abdomen in Infants. A. Gismondi.—p. 7.
61 Streptothrix Meningitis. R. K. Marinucci.—p. 11.
62 Present Status of Leukemia. C. Martelli.—p. 15.

59. ***The Cholesterol Content of the Blood Serum with the Exudative Diathesis.***—Di Stefano cites recent research which apparently fixes the normal range of the cholesterol content as from 1.40 to 1.80 per cent. in the blood serum of adults. In thirteen healthy infants the range was from 0.80 to 1; after the sixteenth month it approximated the adult figure. He found in twenty children with the exudative diathesis, from 4 months to 7 years old, that in twelve the cholesterol content was abnormally small; in four it was within normal range, and in four was slightly above it. He suggests that the abnormally low cholesterol content may be a factor in the inflammatory reactions in the skin, mucous membranes and lymph glands which form part of the clinical picture of the exudative diathesis.

60. **Abdominal Sign of Undernourishment in Infants.**—Gismondi has noticed that infants getting proper and adequate nourishment usually present on each side of the abdomen, low down, a slight protuberance. This is probably due to the relaxed condition of the abdominal wall in very young infants which allows it to bulge when a filled loop of intestine presses against it. This little bulging is constantly observed in young infants thriving on proper nourishment. The absence of the bulging therefore is an early sign that the child is not getting enough food. Distention of the bowel with gas induces a more uniform and diffuse bulging of the abdominal wall. As the abdominal wall grows more elastic, this bulging disappears, usually at the second or third month. Its absence before this may be due to diarrhea, to pylorospasm or stenosis, habitual vomiting or to inability of the child to suck properly. When these can be excluded, insufficient nourishment must be incriminated.

Policlinico, Rome

Jan. 6, 1918, **25**, No. 1

63 The Present Tasks of the Medical Clinic. V. Ascoli.—p. 3. To be continued.
64 *Drainage by the Femoral Route for Peritonitis after War Wounds of the Groin. S. P. Allegra.—p. 7.
65 *Tar Treatment of Wounds. Mantovani and Manzini.—p. 8.
66 Retroperitoneal Dermoid Cyst. R. Vigliani.—p. 9.

January, **25**, Medical Section No. 1

67 *Tumors of the Temporal Lobe. P. Ciuffini.—p. 1. To be continued.
68 *Neurotrophic Edema. R. Carnelli.—p. 12.
69 Tardy Localized Tetanus. B. Masci.—p. 24.

December, 1917, **24**, Surgical Section No. 12

70 *Abdominal Wounds. U. Stoppato.—p. 473.
71 *Hypertrophied Prostate. R. Cinaglia.—p. 485.
72 Experimental Lesions of the Pituitary. A. Chiasserini.—p. 505. *Continuation.*

64. **Drainage of Peritoneum through the Femoral Route.**—Allegra states that in eight cases of war wounds of the inguinal regions he found it simple and effectual to drain the peritoneum by way of the iliopectineal fossa. A buttonhole in the peritoneum is all that is necessary, as the drainage is thus provided at the lowest point. He drained through a No. 28 Nélaton catheter, wrapped in gauze, keeping the dressings moist. The iliac fascia has to be incised but the psoas and iliac muscles are just pushed to one side.

65. ***Tar as First Dressing for Wounds.***—Vegetable tar was applied in fifty cases of war wounds, and although it does not pretend to effectually sterilize the wound, yet it seemed to modify the proliferation of the germs without impairing the vitality of the tissues or impeding leukocyte action.

67. **Tumors in the Temporal Lobe.**—Ciuffini gives the clinical and necropsy study of a case of sarcoma in the right temporal lobe of a man of about 30. It had been causing symptoms for nearly four years. The article is continued.

68. ***Neurotrophic* Edema.**—Carnelli accepts a hysteric element in the case of hard edema described. It covered the entire front of the trunk and neck like a *sleeveless sweater*, with two patches on the cheeks. The entire right side, besides, showed anesthesia. The patient was a soldier of 40, invalided home. The man had a history of measles, malaria and cholera. The edema developed almost all at once and shows a tendency to a blue tint, suggesting Charcot's *œdème bleu des hystériques*. It is symmetrical and is accompanied by *hemianesthesia, lateral hemianopsia* and other nervous disturbances, including recurring aphonia.

70. **Preoperative and Postoperative Treatment of Abdominal Wounds.**—Stoppato emphasizes that the treatment of abdominal wounds is essentially medical-surgical, not sur-

gical alone. It would be a great advantage if men wounded in the abdomen could be carried on the litters in a semiseated position when first picked up. General chilliness, cold extremities and nose, and extreme thirst are among the symptoms of shock. Besides camphor, epinephrin and saline, he has found very useful the application of heat in the form of a frame, fitted with six electric bulbs, that is placed over the body. No fluids should be allowed by the mouth. It may be necessary to continue this treatment of shock for one or two hours, but the stimulants must not be given too freely or they will have the reverse of the desired effect. During the operation it may be found useful to keep up the saline infusion all the time. The condition of the circulation should be investigated anew after the operation before the man is moved.

71. **Hypertrophy of the Prostate.**—Cinaglia advocates palliative measures to the extremest limits, moderation in eating and drinking, avoiding long trips in trains and vehicles, horseback riding, and everything else liable to induce congestion in the prostate. No alcohol, no chilling should be allowed, and the bowels should be kept loose. The bladder should be emptied frequently, not allowing the urine to collect and distend the walls, and the functions of the skin should be stimulated with tepid baths, douche, rubbing and massage. Potassium iodid should be given internally for months or a year. Under strict hygiene it may be possible to ward off further trouble, and even if "catheter life" becomes indispensable, this managed properly may keep the man in the best of health for years. Guyon says it can be kept up for ten or twenty years. If operative treatment is unavoidable, the technic indicated by the special indications should be selected, but he warns that prostatectomy should not be attempted if there is severe purulent cystitis. The bladder can be opened and drained, but the temptation to remove the prostate should be controlled until the cystitis has healed. He yielded to the temptation in one case and the patient speedily succumbed to pelvicellulitis, thrombophlebitis and sepsis which followed the prostatectomy done in a field of purulent cystitis. Cinaglia reviews the various methods of treating the enlarged prostate that have been devised, listing fourteen different procedures besides prostatectomy proper.

Riforma Medica, Naples

Dec. 15, 1917, **33**, No. 50

73 *The Blood Pressure. A. Fulchiero.—p. 1153.
74 *Spasmophiliac Neurasthenia. A. Campani.—p. 1156.

Dec. 22, 1917, **33**, No. 51

75 *Ankylosis of the Elbow. G. Ceccarelli.—p. 1173.
76 *Primary Tumors of Peripheral Nerves. A. Tomiselli.—p. 1180.

73. **The Arterial Pressure.**—Fulchiero refuses to admit that the maximal arterial pressure has any definite significance in itself. Persons with the same maximal pressure may be in widely different conditions as regards the dynamics of their circulation. The minimal pressure, on the other hand, considered in relation to the duration of the heart cycle is an index of the sum total of the peripheral resistance to the circulation. This is what regulates the work of the myocardium, as it has to adapt itself to the resistance it encounters. He adds that the differential pressure bears no proportional relation to the volume of the systolic wave, but knowledge of the elements constituting the differential pressure permits an estimation of the individual conditions in the circulation, as he explains.

74. **Spasmophiliac Neurasthenia.**—Campani has encountered a number of cases of neurasthenia in persons who in youth were inclined to spasmophilia and sluggish metabolism. In twenty such cases the urine was milky, a pseudophosphaturia, but albuminuria was never noted. There was always a special susceptibility to external influences, especially the atmospheric, entailing vasomotor disturbance which in turn induced congestion in internal organs, pains in the joints, and cramps, chronic constipation alternating with diarrhea. The reduction in the acidity of the urine permits the precipitation of the phosphates and carbonates. Campani is inclined to regard the whole as the manifestation of a special state of weakness on the part of the nervous system, probably of sexual origin. All stimulants, caffein, alcohol, belladonna, etc., do direct harm. Purges also aggravate the nervous dyspeptic symptoms when their direct effect is past. Sodium salicylate may relieve joint and rheumatic symptoms. Sodium bromid, in the dose of 3 gm. at evening, is decidedly useful during phases of hyperesthesia, spasms and insomnia. Sexual abstention is of little or no advantage, but abuse is injurious. Preparations of lime mask or improve the pseudophosphaturia but have scarcely any durable advantage. A mixed diet is best. Cases of this kind are classed variously as neurasthenia, arthritism, vasomotor neuroses, intestinal neuroses, and catarrh of the bowel, but he thinks they form a group apart in themselves.

75. **Operative Treatment of Ankylosis of the Elbow.**—Ceccarelli reports complete restoration of function in a case of traumatic ankylosis of the right elbow in a girl of 16. After the parts of the joint had been mobilized, a strip from the patient's fascia lata was interposed and the elbow can now be used normally. The interposed flap prevents the bones from growing again and also prevents formation of new bone, while it answers a useful purpose from the first in preventing pain when the joint is exercised passively and actively. It permits this to be begun from the very first, although extremely gently but perseveringly.

76. **Primary Tumor of Peripheral Nerve.**—A tumor in the posterior tibial nerve in a man of 51 was as large as an egg, but it had its own capsule, and Tomiselli was able to shell it out from between the fibers of the nerve, leaving the nerve intact. There have been no motor or sensory disturbances since.

Tumori, Rome

October-December, 1917, **5**, No. 4

77 *Histolysis by Leukocytes in Cancer. G. Pianese.—p. 357.
78 Sarcoma of Tonsil. C. Verdozzi.—p. 367.
79 Anatomic Findings and Results in Fifty-Five Cases of Resection of the Stomach. G. Fichera.—p. 380. Conclusion.

77. **Retrogression of Cancers.**—Pianese describes a process of retrogression of malignant growths by the breaking down of the tissues by irruption of leukocytes. The result is an atrophy and final necrosis of the blastoma cells, the outcome a sclerosis of the stroma. In the process to which he refers there is no phagocytic action by the leukocytes, or it is subsidiary to the mechanical injury from the crowding of the leukocytes. He has noted it in sarcomas and carcinomas, in glandular cancers more than elsewhere, and it is most pronounced in the young. It is most instructively studied on mammary cancers in young women. As a tentative hypothesis he suggests that the cholesterol in the leukocytes may disintegrate the lecithin in the cancer cells, and thus aid in their destruction by the mechanical crowding. Hofbauer has reported notable retrogression of malignant tumors under cholesterol general treatment.

Revista de Medicina y Cirugia Practicas, Madrid

Dec. 21, 1917, **41**, No. 1487

80 Biochemistry of Skin. D. E. de Oyarzabal.—p. 401. Conclusion.

Revista de Medicina y Cirugia, Havana

January, 1918, **23**, No. 1

81 *Status of Public Health in Cuba. F. M. Capote.—p. 5.
82 Smallpox Vaccination in Cuba. V. de la Guardia.—p. 12.
83 *Abdominal Wounds. J. Carrera and J. O. Cano.—p. 22.

81. **Public Health Problems in Cuba.**—Capote relates that malaria is extraordinarily prevalent in two Cuban provinces at present. These provinces are being brought under cultivation, while the constant stream of immigrants from others of the West Indies renders control of the epidemic very difficult. He says that more than 80,000 Chinese immigrants have been brought in under contract. "First negro slaves, then Chinese under contract, and now free men; all this cheap labor imported for the sugar plantations is an injury to the country. Hundreds of the workers now are incapacitated by malaria while their presence in the country has aggravated the sanitary and economic problems." Typhoid, cancer and infantile enteritis have all shown a slight increase during the last year. He says further, "The war has shut off from Cuba the imports on which it has hitherto mainly subsisted,

as well as the scientific current that fed the minds of the profession. This commercial isolation has forced Cuba to turn to raising and producing more to supply its needs, and I hope that the scientific isolation may in the same way stimulate home scientific production and lead to important achievements in the field of medicine."

83. **Abdominal Gunshot Wounds.**—Carrera and Cano comment on the way in which the experiences of recent campaigns and the present war have modified the old views as to the advisability of abstention in cases of gunshot wounds of the abdomen. A laparotomy should be the rule when there is the least suspicion that the abdomen has been entered. The state of shock may compel some delay, but the operation should not be abandoned on that account.

Revista Medica del Uruguay, Montevideo

November, 1917, **20**, No. 11

84 *Venereal Diseases and Matrimony. J. P. Orfila.—p. 639.
85 Tardy Cesarean Section for Contracted Pelvis. F. Cortabarria.—p. 705.
86 *Cesarean Section for Eclampsia. H. G. San Martin.—p. 709.

84. **Venereal Diseases and Matrimony.**—Orfila discusses from every angle of the subject the relations between and the bearing of venereal diseases on marriage. If every measure recommended by him could be put into practice there would be a considerable diminution in the number of marriages, but, bit by bit, everything needful for the welfare of the state as well as of the family would be done. He advocates wider diffusion of the prophylactic measures against venereal diseases, and that primary syphilis and acute gonorrhea should be treated more energetically and effectively so as to minimize the severity of the consequences and complications of both diseases. Cooperation between the doctors and the public is very essential. All doctors, specialists and general practitioners, should make common cause of instructing the public that gonorrhea and syphilis must be surely treated from the very first day of the disease with energy and perseverance. One of the means of making this propaganda more effective, Orfila says, is to call the attention of the public in a special way to the dangers of latent syphilis and latent gonorrhea from the viewpoint of matrimony.

86. **Cesarean Section in Eclampsia.**—Martin reports the case of a woman, 30 years of age, over seven months pregnant, who entered the hospital in a comatose state. She had vomited the day before and again during the night when she also had a convulsion which lasted ten minutes. Half an hour later she had a second attack. Two hours later she had a third attack while on the way to the hospital. During the examination she had a fourth attack. She remained comatose all the time. The urine contained 14 gm. of albumin per liter; the pelvis was slightly contracted; the mouth of the uterus was closed. Three hundred grams of blood were withdrawn under ether anesthesia. One hour later she had another convulsion, very severe this time, and shortly afterward she had a sixth. During all of this time the patient was blind, presented a generalized anasarca or edema, and only 100 gm. of urine were excreted. Morphin was injected in sufficient quantity to keep the patient quiet, but in spite of such treatment the patient had another convulsion. Martin then performed a classical cesarean section. A dead fetus was extracted. The uterus was closed in two planes with No. 4 catgut, but in spite of tying three knots, the sutures tore through, which leads the author to prefer No. 3 catgut, or a double strand of No. 2. The abdominal wall was closed in the usual way. The patient became very quiet after the operation; the amaurosis disappeared; respiration became normal. The patient left the hospital on the fifteenth day. The author is of the opinion that this operation is one that should be performed more often in cases such as this, but cautions against using a catgut that is too heavy.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 1, 1917, **2**, No. 22

87 *Death from Electricity. C. W. G. Mieremet.—p. 1951.
88 Constitutional Eosinophilia. D. Klinkert.—p. 1972. To be continued.
89 Pigmented Urticaria. J. B. S. Schwab.—p. 1977.

87. **Fatal Electric Shock from Incandescent Bulb Light.**—Mieremet gives a comprehensive summary of what is known in regard to electric shock and means for dealing with apparent death from electric shock, and then describes a fatal case. The man was robust and heavily clothed, although it was a hot day. He was engaged in repairing a boiler from beneath and had been at work there an hour or two by the light of an incandescent bulb on an extension wire. Fifteen minutes after returning to his task after an errand elsewhere, the sound of his hammering was no longer heard and he was found dead. The only sign of injury was on a finger of the left hand which showed charred tissue where it lay against the bulb, and on the upper part of the right arm which showed merely a whitish greyish spot about 2 cm. in diameter. It felt hard and the corium seemed a little firmer than in the surrounding tissue but there were no traces of hemorrhage or effusion and the muscles seemed normal. The epidermis over the median side of the belly of the biceps was somewhat raised, as by a blister. The heart was relaxed, filled with fluid blood, and the lungs were edematous, which he interprets as evidence that the passage of the current through the heart had caused the *trémulations fibrillaires* to which the fatal outcome of electric shock has been ascribed by French writers.

He emphasizes the peculiar whitish appearance of the spot on the arm. The microscope showed it to be a coagulation necrosis, the collagen fibrils of the connective tissue having been fused, probably by the heat generated by the current under the resistance offered by the skin. The electric bulb in question had an unusually narrow porcelain ring, the copper projecting beyond it and thus affording a chance for contact with the current. It was an alternating current of 220 volts. Mieremet urges others who have occasion to study cases of electric shock to examine for the whitish greyish patch such as he found in this case, and regards as characteristic of electric injury, and begs them to communicate with him. He is prosector at the Institute for Pathology at the University of Groningen.

Hospitalstidende, Copenhagen

Dec. 19, 1917, **60**, No. 51

90 *Variations in the Hydrogen Ions in the Blood in Different Diseases. C. Sonne and Jarløv.—p. 1247.

Dec. 26, 1917, **60**, No. 52

91 *Scarlet Fever Epidemic in Greenland. S. Barchalia.—p. 1271.
92 *Stain for Protoplasm of Bacteria. M. Claudius.—p. 1276.
93 Perforating Ulcer of the Rectum in Woman of Sixty-seven. C. E. Uldal.—p. 1280.

90. **Hydrogen Ion Content of the Blood in Different Diseases.**—Sonne and Jarløv found the range between 7.28 and 7.33 in twelve normal persons. The findings in nineteen patients with various diseases are tabulated in minute detail. The range was likewise very small even with pronounced heart and kidney insufficientcy, the reaction of the blood displaying remarkable constancy through the heart and kidney disease and diabetes (three cases), even up to the terminal phase.

91. **Scarlet Fever in Greenland.**—Barchalia reports a mild epidemic of scarlet fever in a Greenland colony with 377 inhabitants. Only children were affected, but at the same time there was an epidemic of infectious sore throat among the adults—a total of forty cases. Except for two cases of scarlet fever in 1877, the disease has never appeared before in this colony. Barchalia gives various reasons for assuming that both epidemics were true scarlet fever only that the adults did not develop the eruption. The child skin is more sensitive.

92. **Stain for Protoplasm and Cilia of Bacteria.**—Claudius describes a chromic acid and anilin oil method which shows up the protoplasm and cilia of typhoid and other bacilli with a wealth of details. It makes the aspect of the bacteria as different, he says, from the ordinary microscopic picture as a roentgenogram differs from the ordinary photograph. The glass on which the specimen rests takes the stain intensely and the protoplasm allows the stain to pass through to the nucleus, but the protoplasm itself does not take the stain.

Nordiskt Medicinskt Arkiv, Stockholm

October, 1917, **50**, Internal Medicine Section, No. 1-2

94 *The Lungs with Valvular Heart Disease. J. Tillman.—p. 1.
95 Segmental Innervation of the Abdominal Muscles. G. Södergergh.—p. 32.
96 *Ascites with Cirrhosis of the Liver. M. Simon.—p. 42.
97 *Differential Diagnosis between Large Cavities and Pneumothorax. S. Zandren.—p. 163.
98 The Leukocyte Aposomes. A. Nyfeldt.—p. 182.
99 *Difference in Affinity for Silver Stains between Living and Dead Bacteria. A. Nyfeldt.—p. 184.

94. **The Lungs with Valvular Disease.**—Tillman relates that a young woman with valvular defect in the left heart presented for nine months symptoms on the part of the lungs which were accepted as unquestionable evidence of pulmonary tuberculosis, notwithstanding the negative bacteriologic findings. Then with symptoms of failing compensation the young woman died, and necropsy revealed merely chronic hyperemia in the lungs from stasis plus chronic catarrhal bronchopneumonia, with nothing to indicate tuberculosis anywhere. Roentgen examination would have cleared up the diagnosis during life. Another young woman with similar valvular stenosis was sent to a sanatorium and treated for pulmonary tuberculosis after a moderate hemoptysis, but the roentgen findings suggested that the trouble was only the brown induration of the lung tissue common with mitral stenosis, and necropsy soon confirmed this assumption. Hemoptysis may thus occur from this chronic passive hyperemia in the lungs alone, and nothing but the roentgen findings can be depended on to interpret it. Six other cases are described in which under the influence of mitral stenosis the lungs seemed to be the seat of tuberculous processes, but the roentgen or necropsy findings disproved this or showed extremely attenuated tuberculous infection. No special difference between the right and left lung was apparent in this respect. The symmetrical aspect in the roentgen picture is striking. The more localized, spotty or cloudy aspect of tuberculous changes along with the brown induration are easily recognized. He reviews the literature on the rarity of pulmonary tuberculosis with mitral stenosis and with heart disease in general. With the brown induration from mitral stenosis there may be slight dulness at the apex, with slight modification of the breathing sounds, resembling the findings with incipient pulmonary tuberculosis, and there may be moist râles in one or both apices, or consonating râles at one apex or just below, along with modification of the resonance and the breathing murmurs. These physical symptoms may persist unchanged for weeks, months or years, without apparently direct connection with lost compensation. There is no certain means of distinguishing between the hemorrhage from stasis and the tuberculous hemorrhage, and the most profuse hemoptysis may be induced exclusively by stasis from valvular defect.

96. **Ascites with Cirrhosis of the Liver.**—Simon's long study of this subject fills 121 pages. He aims to draw up the balance sheet for operative treatment of ascites from cirrhosis of the liver, comparing the outcome of the cases with and without omentopexy. Twenty-eight pages are devoted to tabulation of the classified cases, and forty pages to the more typical case histories. His compilation of operative cases includes 212 published by forty-two different operators. He restricts the list to the Talma-Morison operation, that is, to attempts to ensure the development of an adequate collateral circulation. One point brought out by the compilation is the better prospect for success from the operation for Laennec's cirrhosis when the patients are in the thirties, instead of in the fifties, although successful cases are known in patients of 60 or more. Compared with these 212 cases, are 142 cases at the Stockholm hospitals in which there was no surgical intervention. The cases in which syphilis is responsible for the cirrhosis give by far the best prognosis in all cases of ascites, provided the syphilis is treated.

Comparison of all this material shows that the cases of cirrhosis of the liver with ascites fall into two great classes; those in which the ascites is the result of progressing obstruction of the portal system by the encroaching cirrhosis—a purely local trouble, and those cases in which the portal system is not much obstructed but the weakness of the heart action entails the ascites. In the first group, omentopexy to aid in development of collaterals offers great chances for relief and an approximate clinical cure. Without some such intervention the patient is doomed. In the other group, the immediate prognosis is less grave, and omentopexy will have little influence on the course of the case. It should be considered only as the very last resort in this group, after failure of treatment of the heart disease and possible syphilis. Elements which might turn the scale in favor of an operation are a good general condition, integrity of the omentum, age under or near 40, absence of jaundice, and the presence of very little extreme atrophy. It is encouraging to realize, also, he says, that patients in very bad condition, with extreme atrophy and jaundice, and others almost 70 years old have occasionally been successfully treated by operative means. Unfavorable findings with functional tests, etc., are thus not an absolute contraindication. Simon adds that an exploratory laparotomy is the only means to determine the condition of the omentum and differentiate the true nature of the liver disease. He advises it as a routine measure when the abdomen has to be repeatedly tapped. The omentofixation can be extraperitoneal or by Morison's intraperitoneal technic. He suggests that it might be worth a trial to supplement the omentopexy with introduction of a silver button with a passage through the center, leading from the peritoneal cavity into the subcutaneous tissue.

97. **Lung Cavity Simulating Pneumothorax.**—A woman of 44 with bilateral pulmonary tuberculosis was supposed to have a pneumothorax on the left side, with adhesions. This assumption was based on the history of attacks of pain in the side, with dyspnea, fever and chills; and the facts that dyspnea was the predominating symptom during the last few years, with occasional periods of collapse; that percussion gave a metallic tympanitic ring; that the respiration sound was weakly amphoric with râles only at the apex, and that the roentgen findings positively confirmed the physical diagnosis. Necropsy revealed that what had been supposed to be merely pneumothorax was a huge cavity, the entire lung destroyed. There had been very little bleeding from the lung at any time, and comparatively little sputum. Zandren has found three similar cases on record. As the physical findings are so misleading, an exploratory puncture may be necessary if bronchophony and the pectoral fremitus are not decisive.

99. **Silver Staining of Living and Dead Bacteria.**—Nyfeldt gives a colored plate to illustrate his statement that dead bacteria stain prominently with silver nitrate while living bacilli display no affinity for it. He experimented with fifty specimens of streptococci, colon bacilli, etc., leaving the bacteria in a 5 per cent. solution of silver nitrate for twenty-four hours, concluding with neutral red. The killed cultures show black, and only the living bacteria show red.

Ugeskrift for Læger, Copenhagen

Dec. 20, 1917, **79**, No. 51

100 *Symptom of Internal Ear Disease. S. H. Mygind.—p. 2019.

100. **Diagnosis of Internal Ear Disease.**—Mygind's patient, an elderly woman, had been having suppuration in the left ear for two months, with sudden and extreme dizziness and slight nystagmus. No other symptoms could be elicited until the patient was given Bartels' biconvex glasses. These prevent fixation and accommodation and thus check the nystagmus movements, but they serve as a magnifying glass for the observer. He saw through them that both eyeballs were making small horizontal rotary movements from side-to-side in a regular rhythm synchronous with the pulse in the radial artery. Modifying the circulation in the labyrinth by compressing the left carotid, started powerful nystagmus to the sound ear at first, and then it changed to an opposite nystagmus, accompanied by great dizziness. He accepted these phenomena as indicating the existence of a fistula in the labyrinth, and that this fistula had become obstructed by granulations or other cause, the vascular tissue pulsating and thus forcing the endolymph to and fro through the ampulla. The operation confirmed this assumption in every detail, not only in this but in two other cases in which he could elicit nystagmus by pressure on the carotid artery.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 70, No: 10 Chicago, Illinois March 9, 1918

LESSONS FROM THE WAR AS TO TUBERCULOSIS

THE SITUATION IN FRANCE*

GEORGE E. BUSHNELL, M.D.
Colonel, U. S. Army (Retired)
WASHINGTON, D. C.

Tuberculosis may be said to be preeminently the disease which interests the philanthropist. It is one of the most curable of chronic diseases, and more or less definite plans for attacking it have been formed which are of interest to the social workers, to students of economics, to those who control the charitable activities of the state and of the municipality, and to the vast number of private citizens who maintain benevolent societies by their contributions of money and of personal effort. We may therefore well hope that the activities of the Surgeon-General's Office as respects the prevention of tuberculosis in the Army will be of interest to the public as well as to the medical profession, and, perhaps, most of all to an assemblage, the members of which are connected with a nation-wide association for the treatment of tuberculous patients.

It was decided by the Surgeon-General, early in the war, that the entire army should be examined for tuberculosis by specially expert physicians. Many difficulties were experienced at first in obtaining examiners; it is not necessary to detail them now. Suffice it to say that examination was made first of the officers' training camps, then of some 105,000 men of the Regular Army, and finally of the National Guard as soon as it was mustered into the United States service. For the last examination, in view of the dearth of examiners for the camps, the expedient was adopted of examining the National Guard troops of many of the larger cities at their armories. This made it possible to utilize at home the services of the large number of patriotic physicians who, on account of various reasons—age, ill health, pressure of other obligations, etc. — were unable to go into the field. After the National Guard came the turn of the National Army, the examination of which is now nearing completion. When this is finished, approximately 800,000 men will have been examined.

The number of cases of tuberculosis detected is somewhat less than 1 per cent. of the total number of men examined. From a financial standpoint the examinations have paid for themselves manyfold, for it has been calculated that each tuberculous patient that is returned from Europe will cost the government about $5,000, and it is a conservative estimate that the tuberculous soldier who never leaves this country will cost on an average $1,000, including pension. If we assume, then, that the total number of cases of tuberculosis detected is, say, 7,000, and that these men were eliminated from the Army before they could justly claim pensions as the result of their Army service, the saving to the government will be at least $7,000,000.

But, you will say, the question of expense is, after all, a minor consideration. How about the efficiency of the examination—have all the cases of tuberculosis been detected? Naturally, I cannot give a categorical reply to this question. We have simply done the best we could to obtain the most skilful examiners. Indeed, we have been remarkably successful in securing men of the very highest class as examiners. Taken as a whole, the boards of examiners have been fair representatives of the best medical skill of the country. That every case has been detected, no one would claim. Some soldiers of the various organizations, sick in hospital, on detached service, on furlough, etc., have not been examined. The individual examiners have been expected to examine at least fifty men a day. Some have averaged a much higher number. Doubtless there have been times when the attention flagged, when noises disturbed, so that the telltale signs of tuberculosis escaped detection. But we can at least be sure that the great bulk of the cases has been disposed of, that such patients as remain in the ranks constitute but a very small proportion of those that were present before the examinations were commenced.

Another question that may be asked is one that might not occur to the reader so readily and that is, Have not the examinations been too thorough, have not men been rejected who were really fit for service? This question, which, as I shall attempt to show, is a very fair question indeed, is one not readily answered. As dead men tell no tales, so men discharged do not come to the attention of the War Department, that is, as a rule; there have been exceptional cases in which we have been obliged to admit that the boards had been too particular, that the men rejected really had no active tuberculosis. This phase of the subject is one of importance, for more reasons than one. Let us consider it more fully. In order to do this I must say a few words as to the diagnosis of tuberculosis, a highly technical subject, to be sure, but one which must be considered, nevertheless, if a correct view of the situation is to be obtained.

THE DIAGNOSIS OF TUBERCULOSIS

For some years it has been the aim of many writers on the diagnosis of tuberculosis to discover signs which should reveal the presence of tuberculosis at a much earlier date than was possible by resort to the commonly recognized signs of that disease. This was based on the theory that a very early diagnosis would lead to more speedy and certain cure. This striving after new signs, or this giving of a new significance and weight to signs formerly regarded as unimportant, or overlooked entirely, has not been peculiar, by any means, to the profession of the United States. The tendency in this direction has been marked in the medical writings of England, France and Germany as well. It may be said that there is one school of tuberculosis, all over the world, that holds the view that, given acute enough perceptions and close enough attention, it is possible to make the early diagnosis of incipient pulmonary tuberculosis to an extent hitherto undreamed of. The more conservative experts, as a rule, held their peace during this time, so that to one not familiar with the subject it appeared that the new school was unopposed, that its teachings represented the actual facts. Hence the younger men grew up to believe very largely that the diagnosis of tuberculosis was one of extreme difficulty which only the trained expert could compass, and were correspondingly discouraged in attempting such diagnoses themselves, unless the circumstances were such that they could specialize in tuberculosis. If the new school, as I have called it, is correct in its doctrines, well and good. If not, what is the result? Manifestly, that many cases will be called tuberculous wrongfully, and that credit will be given for cures of a disease that did not exist.

---

* Read at the annual meeting of the National Jewish Hospital for Consumptives, New York, Jan. 13, 1918.

THE SITUATION IN FRANCE

One could hardly have anticipated the momentous effect which this teaching has had on the military efficiency of the armies of the contending nations, and especially on the army of France. Early in the war it was reported, on the authority of Landouzy, one of the most prominent of French physicians, that during the first year of the war 86,000 soldiers were discharged from the French army on account of tuberculosis. This report was received with something like consternation in this country. It was rightly felt that such figures denoted an appalling situation, and the deduction was very naturally made that military service under conditions of modern warfare is extremely harmful, that it favors in a peculiarly fatal way the development and spread of tuberculosis. From this sprang the fear that our troops would likewise be decimated by this so dreaded disease, and the demand that the slightest indications of the existence, present or past, of a minimum amount of tuberculous involvement should be sought for with extremest care, with a view to exclude the bearers of such lesions from the ranks of our army.

Since the pronouncement of Landouzy, however, enough time has elapsed for a revision of these figures. The discharged soldiers composing this army of 86,000 have been reexamined and kept under observation. And with what results? A cablegram has recently been received by our friend Colonel Dercle from the French minister of war, from which it appears that less than 50 per cent. of this 86,000 are now officially recognized to have tuberculosis. The old saying is, "Give a dog a bad name and it is hard for him to lose it." Similarly the diagnosis of tuberculosis once made for a given patient is likely to be sustained. The self-distrustful physician may think the diagnosis to have been made by one of diagnostic ability superior to his own, and there is always the thought, "I shall be disgraced if I say that such and such a patient has no tuberculosis, and he afterward is found really to have the disease." It requires no small amount of courage and independence to reverse findings of this nature. A man of this stamp was found in Major Rist of the Medical Department of the French army, for some time attached to the office of the Surgeon-General of our army. Major Rist examined various groups of men sent back from the front with the diagnosis of tuberculosis, and found the disease present in less than 20 per cent. of the cases. Blümel, in Germany, also has reported that of cases supposed to require sanatorium treatment, examined by him, less than 20 per cent. had active tuberculosis. His figures, arrived at independently, are thus seen to agree singularly with those obtained by Major Rist in his examination of supposedly tuberculous soldiers. Such percentages of active disease, so much smaller than any one would have anticipated, permit a doubt as to the percentage of the tuberculous reported by the French authorities. Indeed, Major Rist[1] expresses the opinion that, of the 86,000 noted, less than 20 per cent. were really tuberculous, thus showing that for him the figures of less than 50 per cent. given by the minister of war are, to say the least, conservative. It appears, then, that the number of 86,000 which so excited our fears represents a number of men which various overworked, perhaps excitable and pretty certainly not especially skilled medical men thought might have tuberculosis, which is a very different thing from really having that disease in a manifest form.

When 3,000,000 men were suddenly mobilized in the face of an enemy who was rapidly advancing on their capital, there was naturally no time for examinations. Every man able to bear arms at all was wanted at the front, sick or well, and, it is said, many a consumptive welcomed the oportunity to lay down his life for his country on the field of battle rather than to die ingloriously a lingering death in his bed. Under these circumstances, it is small wonder if there were many cases of tuberculosis among the French soldiers; the cases among them of really active tuberculosis are probably no more than might have been expected in view of the prevalence of tuberculosis in France before the war. But this is a very different thing from the view that has been so widely held in this country that the conditions of modern military service are such as necessarily lead to widespread extensions of tuberculosis among soldiers who seemed to be, perhaps were, well when they entered the service. Such evidence as we have from other quarters points distinctly to the fact that military service, on the contrary, is beneficial rather than the reverse for men with old, arrested tuberculous lesions. That has been the experience in the British army; and with reference to the German army it has been stated, as I have had occasion to remark elsewhere, that the need for men has made it necessary to accept for enlistment persons with healed or inactive tuberculosis, but many of them have made excellent soldiers; further, that while open cases of tuberculosis, or such as give evidence of an active process, must be exempted, men with old, inactive, cirrhotic forms can, under certain conditions, be regarded as fit for military service. And Goldscheider demands that only men with active tuberculosis from the army should be taken into sanatoriums, regarding as insufficient for a diagnosis various signs frequently adduced as indicative of early tuberculosis. The development of tuberculosis under the stress of war conditions is, of course, a much more serious matter when to fatigue and exposure is added hunger. Soldiers are well fed, but the civil population of the invaded areas, and the half starved prisoners of war, have suffered severely from tuberculosis.

---

[1] Rist, E.: Mil. Surgeon, 1917, 41, 659.

We see, then, that an army like the British, and like our own, which has been carefully examined with a view to the elimination of cases of active tuberculosis, can reasonably expect to remain free of any alarming development of the disease under the conditions of active service. Certain cases there will be; there is what is called the inevitable percentage of tuberculosis arising in men whose low resistance and feeble reactive powers cannot be measured in advance by our methods of examination. We must be prepared for, say, about two cases of this kind per thousand men.

THE BENEFICIAL EFFECT OF ARMY LIFE

It seems to me quite time to look on the bright side of this question. According to recent teachings, we all have a little tuberculosis. This little tuberculosis, however, in 60 per cent. of the community results only in a beneficent immunity and does not by any means always lead to a fatal issue in the remaining 40 per cent. Those that die of tuberculosis are largely the weaklings, the men of poor development, the dissipated. That any man who enters the service in robust health runs serious danger of developing tuberculosis as a result of the life of a soldier, I do not believe. Indeed, may we not also consider briefly the bright side of another subject — the effect of military service on the health of the soldier? Any one who has observed the effect of the early military training on the average recruit from civil life will have been astounded at the rapidity of his transformation. The regular life in the open air, the abundant sleep and exercise, the strengthening food, lead to a rapid and visible improvement in health in the majority of cases. The untrained boy is rapidly changed into the hardened veteran who returns from his army experience a stronger man for the remainder of his days. Even under the hard conditions of trench warfare, those who escape wounds, when they have become inured to the conditions, enjoy robust health. To be outdoors constantly, even though the life involves much hardship, is the best means for securing a robustness of health which we city dwellers do not know in our luxuriously heated abodes. Therefore, while, in spite of all the efforts of the enlightened sanitary officers, some weaklings will fail and the inevitable epidemics of measles and other camp diseases will disturb, on the whole and in the long run, army life in campaign tends to create and maintain a vigorous and robust army.

I am, as may be seen, an optimist about army life, and I believe that experience justifies this point of view. I am especially optimistic with regard to the effect of army life on those persons who present evidences of an old, slight, healed tuberculosis which, in my judgment, if of small extent, is an evidence rather of an immunizing reaction than of tuberculosis in the sense in which that term is usually employed. After all, what an army most needs is men. It would be a great misfortune if all men with slight indications of old pulmonary lesions were excluded from its ranks, for such minute changes as those I have just mentioned are wellnigh universal among our population. Mistakes in diagnosis cost the French army the services of a division, perhaps two divisions, at a time when men were sorely needed; but perhaps these mistakes will have resulted in good for our army, if we can learn from them the much needed lesson that they bring, the lesson not to make the diagnosis of tuberculosis until adequate reasons exist for forming that diagnosis.

EXTENSION OF THE BENEFIT

The benefit derived from this clearing-up of the tuberculosis situation need not be limited to the army. I look to see a juster view prevail as to the diagnosis of early tuberculosis in the medical practice of civil life. Perhaps the best idea of what I have in mind may be obtained if we take the question home to ourselves. I feel rather strongly about this, for I myself have spent six months in physically harmful idleness under the diagnosis of an active tuberculosis resting on the erroneous interpretation of normal physical signs. Suppose that you, sir, are told that you must give up your business which so much requires your attention, and spend the winter in Arizona; that you, madam, are required to leave at once your children and your social duties to live in a hired cottage at Saranac; that you, young man, the support of a widowed mother, must lose your position in order to take up sanatorium life. Such changes are trying enough if necessary; how doubly trying if they are not really necessary, if the fateful diagnosis depends only on signs, the importance of which is exaggerated, or the significance of which is misinterpreted. Understand me, I am not attacking the diagnostic ability of your physician. The fact that you are here today is sufficient evidence, perhaps, that he does not hold the views which are questioned by me. I simply give this as an illustration of the untoward results which are to be expected if one yields to the oft-repeated demand that every man showing the slightest evidence of pulmonary change shall be eliminated from the army. If the civilian is wrongly said to have tuberculosis, the evils of the error are largely confined to a narrow circle. If the same mistake is committed in army practice on a large scale, the efficiency of the army is impaired and the safety of our beloved country is threatened.

But perhaps some one will say, Why trouble us about matters over which we have no control? If I have thus taken you into my confidence, it is done in order that you may understand the situation as I see it, and be helpful in another matter. If you are convinced that slightest variations from an assumed normal in the lungs are not necessarily signs of an impending doom, you can do your part to discourage the prophecies of evil, the dark forebodings as to the extreme peril of our troops so far as infection with tuberculosis is concerned. Such prophecies and forebodings are not only unwarranted, they are unpatriotic. One can hardly render better service to our enemies than by discouraging our soldiers. No army has ever been more thoroughly examined than ours, or more carefully watched over by experts along many lines. Many of the best men of the medical profession are sacrificing their private interests, and laboring without cessation, in order that every preventable disease may be kept from our soldiers. I believe that they will succeed in this, so far as it is in the power of modern science to command success. I therefore look forward with confidence to the future and call on you as true patriots to help us by your faith and your optimism.

A ROLLING CRUTCH

PRELIMINARY REPORT *

ROBERT G. HALL, M.D.
PORTLAND, ORE.

The present form of crutch, with only slight modifications, has been used since antiquity. At least no change in the mechanical principles involved has been made. When a step is taken, the tip is at a fixed position on the ground, and the crutch, as a radius, revolves about it. As a result, the motion at the shoulder follows the form of an arc, first rising and then falling with each step. Thus, for a man using a 55-inch crutch, if his weight is 180 pounds and he takes a 2½ foot step, he will rise and fall 2 inches, which means that 30 foot pounds of energy are wasted at each crutch step. Again, the crutch step is shorter in one way, than the normal foot step, for in the latter the man lands on his heel and takes off from the ball of his foot about 8 inches further forward, while in the crutch he gains only the width of the rubber tip, or about an inch and a half.

I have devised a rolling crutch which I believe has many advantages over the old form. I reproduce in metal the shoulder curve of the crutch as it rotates, and apply this metal arc in the form of a rocker to the base of the crutch. When such a crutch is used the upper end travels in a straight line. This has been proved both theoretically and practically. This arc or rocker applied to the base of the rolling crutch is the arc of a circle whose radius equals the length of the crutch. In actual practice I have taken as a radius of my arcs a line an inch and a half longer than the crutch so as to have the center of rotation at the middle of the shoulder joint.

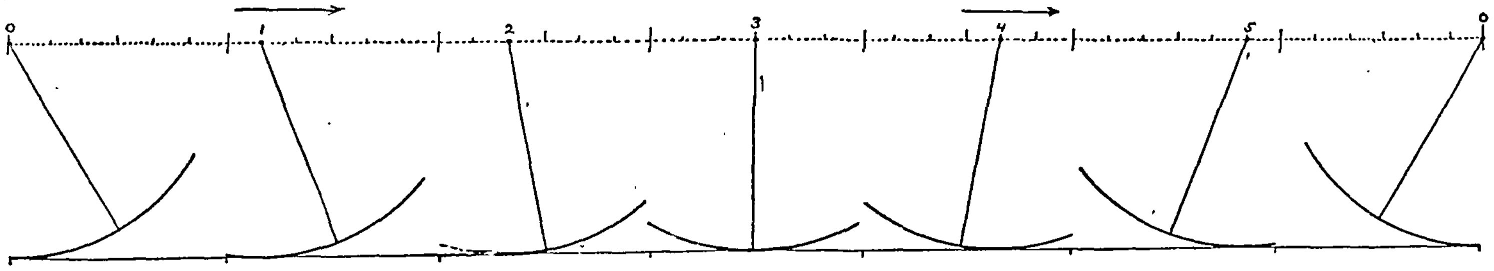


Fig. 1.—A moving-picture representation showing just how the rolling crutch works. The figures at the top represent the position of the shoulder, and show the amount and direction of motion of this part. For purposes of illustration the shaft of this crutch is greatly shortened. The crutch rolls from left to right.

The use of the rolling crutch transfers the center of rotation from the ground to the shoulder joint, and thereby procures for the cripple a smooth and efficient wheel-like forward motion instead of the jerky, up-and-down hobble so characteristic of the old crutch. At present the man is stumping along on the spokes of a rimless wheel, but this rolling crutch puts a rim on the wheel, greatly to his advantage.

The rolling motion is just like that of a wheel, and in Figure 1 the successive stage of this are shown. A crutch of the second pair made up, and a very practical one, is shown in Figure 2. This consists of a reinforced crutch fitted with a metal arc made of thin double-flanged iron 14½ inches long. Two quarter-inch steel rods are welded to the ends, and these are attached to the stick as shown. The base of this arc is three-quarters inch wide and is covered with a piece of nonskid bicycle tire which is cemented to it, the ends being bound on with fine piano wire. The curved lines above the crutch are actual tracings of the path of the top as it rotates or rolls. The lower line represents the path of the ordinary crutch of the same length as the crutch here shown. The upper line designates the course of the rolling crutch. The top of this curve is formed by a plateau 14½ inches long, and then the curve of the old crutch begins. It is as if the circular curve of the old crutch were cut at its highest point, the parts pulled 14½ inches apart and joined by a straight line. The metal handle to the left will be discussed later. The stability of these crutches is shown by the fact that they stand alone when leaned together, the weight of the metal handles simply rolling them a little from the vertical. Figure 3 shows a folding crutch with an arc 31 inches long. The folding is accomplished by joints made of portions of hinges welded to the metal arcs and the supporting rods. The curved lines at the top show the actual tracing of the motion of the top of this crutch as compared to that of an old crutch. Here the plateau is 31 inches long. Figure 4 shows this crutch folded for down-town use. The arc at the base is only 12 inches long, but even this adds over 10 inches to each step.

With the ordinary crutches and with the rolling crutch I walked a measured distance of 200 feet, using a moderately long step in each case. With the old crutch seventy-five steps were taken, including both normal leg and crutch steps. With the rolling crutch sixty-four steps covered the distance. This shows a saving of about 14 per cent. in the number of steps taken in favor of the rolling crutch. When we consider that half of the steps taken in each test were normal leg steps and about equal, the distance gained is made by the superior efficiency of the thirty-two rolling crutch steps over the thirty-seven common crutch steps. This virtually amounts to 28 per cent.

The first pair of rolling crutches that I had made had an arc measuring 30 inches (Fig. 5), and folded up to an ordinary crutch with a base only an inch wide. With these opened and folded I paced off the 200 feet. With the old crutch form I took seventy rather long steps, while with the rolling form I made it in fifty-three, using similar steps. This effected a saving of 24½ per cent., including the similar leg steps in each case. By elimination of the latter, virtually an increase of 49 per cent. in the length of crutch step is gained when the roller is used. These rough tests show that the rolling crutch does add to the length of the crutch step in a practical way.

The disadvantages of these crutches are obvious: 1. They are cumbersome and apt to get in the way of other people. 2. They are heavier than the old crutch. 3. They are more expensive. 4. They are more complicated.

---

* Demonstrated Dec. 5, 1917, and Jan. 2, 1918, before the Portland City and County Medical Society.

ADVANTAGES

The advantages are less obvious at first sight, but are numerous and fundamentally important. I shall take these up in order and discuss them briefly.

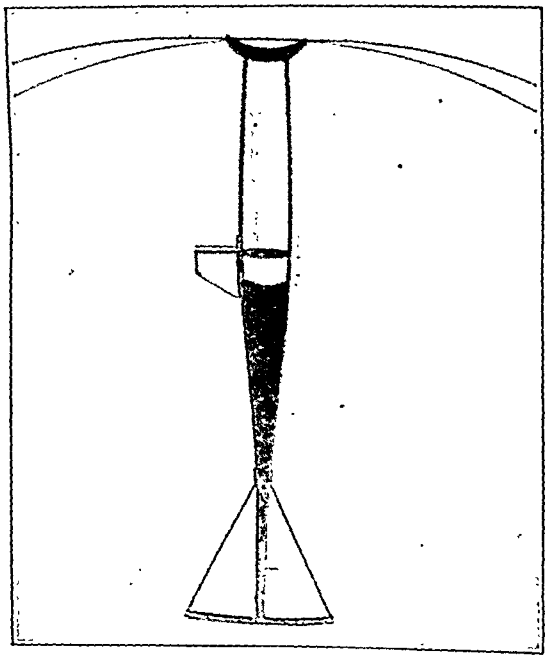


Fig. 2.—A strong, practical crutch 54 inches long, bearing a rim 14½ inches long at its base. The arc of the rim is drawn with a 55½ inch radius. The crutch weighs 3 pounds 13 ounces, whil a similar crutch of the old style weighs 1 pound, 10 ounces.

1. The motion at the axilla is all or mostly—depending on the length of the arc—in the direction of progress. The upper curves in Figures 2 and 3 show this.

2. A longer step is possible with the same length of crutch, and this is as much longer than the ordinary crutch step as the rocker used is longer than the rubber tip.

3. A more direct support of the body is provided at all stages of the step. Figure 6 demonstrates this. Here the braced tip of the rocker is seen to be directly under the piece that supports the shoulder. As the crutch is constructed with all parts of the rocker equidistant from the point of rotation at the head of the humerus, it is evident that the user will have an effective, weight-bearing support directly under the axilla at all stages of the roller step.

4. Direct participation of the arms in the entire forward step is possible. If the patient bears his weight on his hands, as most do, and grasps the metal handles in front of the usual ones, his weight alone will cause the crutches to rotate in such a way that he will move forward. This procedure is helpful against a wind, over rough ground, and especially up hill. If the man releases the crutches and turns about 180 degrees, the extra handles will be behind the usual ones, and if he now grasps them, the weight of his body tends to retard the forward rotation of the crutch and helps very much in going down hill. Similar extra handles could be applied with advantage to the common crutch.

5. At each end of the rolling step the crutch acts like an ordinary crutch, but only the most efficient portion of the curve (the nearly horizontal one) is used. Figures 2 and 3 show this best. In these a short line across the upper curves shows where the roller effect stops and the old crutch curve begins.

6. For the same length of step a better angle is obtained with the ground. In Figure 6 the positions of both crutches are compared at the beginning of a step. Measurement shows that the angle of the effective support of the rolling crutch with the ground is 88 degrees, while that of the old crutch is 72 degrees, or 16 degrees more acute. It is obvious that the latter angle tends to cause slipping when the weight of the body is applied to the old crutch. Thus at all stages of the step the rolling crutch is the more secure.

7. Reaching is eliminated largely by the use of the new crutch; instead of this the arc is simply swung forward and the curve does the rest. Figure 6 shows this advantage of the new crutch graphically; for a step 31 inches long the new crutch eliminates a reach of 2 inches. This does away with the limp effect.

8. There is less sinking in the soft earth or snow. I have the tip of an old crutch buried 7 inches in my lawn, but the roller simply cut in a very little in traveling over the same ground. The slight curve of the rocker does not allow it to sink. This point was brought to my attention by a one-legged man who was trying the crutches.

9. The curve of the roller on these crutches is so slight that uneven ground may be traveled over more easily than with any wheel in common use. The diameter of the circle whose arc is used is over 9 feet; the arc, therefore, bridges small depressions in the ground, and thus, as far as it goes, at least, has the advantage over other wheels.

10. Great stability is obtained with these crutches in two ways. First, if all parts of the arc are equidistant from the center of rotation at the shoulder, a man resting on these crutches can no more tip forward or backward than a wagon wheel can roll of itself. Again, stability is controlled very well by the use of the arms when the anterior or posterior metal handles are used.

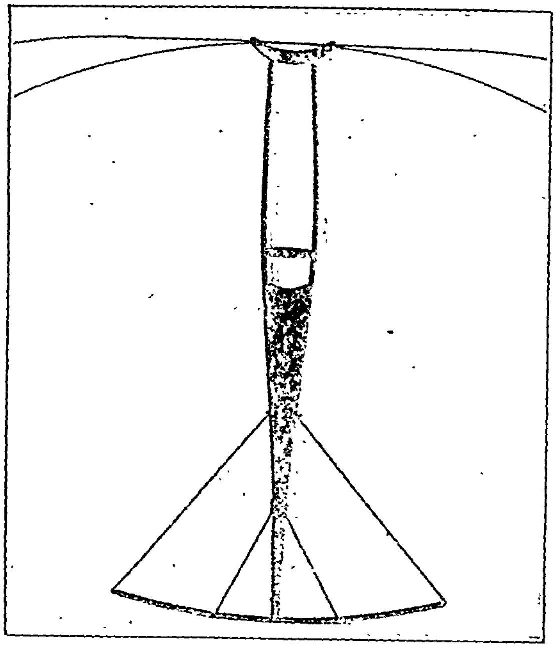


Fig. 3.—The long arc, folding crutch. It weighs 4 pounds 10 ounces. The arc is 31 inches long in this form and 12 inches long when folded.

11. By a simple variation in the curve of the roller or a slight change in the angle that the roller bears to the staff part of the crutch, the crutch step may be converted into a down-hill roll. If the back portion of the rocker is so adjusted that the surface of the arc is an inch farther from the center of rotation than the front end is, this effect will be accomplished. Figure 5 is a diagram of a crutch of this type with the difference in the length of radii exaggerated to bring out the effect more strikingly. The right support is shorter than the left, and this allows the patient to roll down hill to the right with each step. For going down hill the man should face about, and then the slight up-hill roll will in some measure counteract the down-grade effect. In this pair of crutches, further, the handles are curved, and one may grasp them either forward or back, and thus get the effect obtained with the metal handles. The first pair of crutches I made up are like these, but they fold into an ordinary crutch. It may be noted that in Figure 5 these crutches stand in a position as if they were rolled to the right, or toward the shortest radius of their arc.

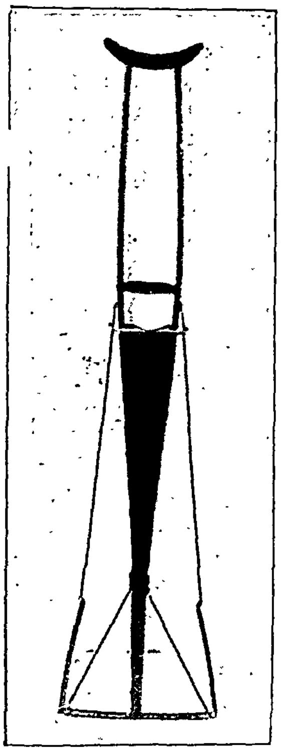


Fig. 4.—The same crutch as in Figure 3 folded up. The arc here is a foot long.

12. The jar occasioned by the crutch step is less. This is due not only to the fact that the reaching is largely eliminated, but more especially to the fact that when the weight of the body first is brought to bear there is a considerable stress on the whole crutch; this makes the latter spring a little and takes up the jar.

13. Going *up and down* stairs is both safer and easier with the rolling crutch. On the stairs the man walks on the tips of the arcs, leaving the arcs themselves projecting over the stair below. By keeping the extra handles on the up-stairs side of the crutch, the arms exert in both ascending and descending a tendency to roll *up*, which is advantageous.

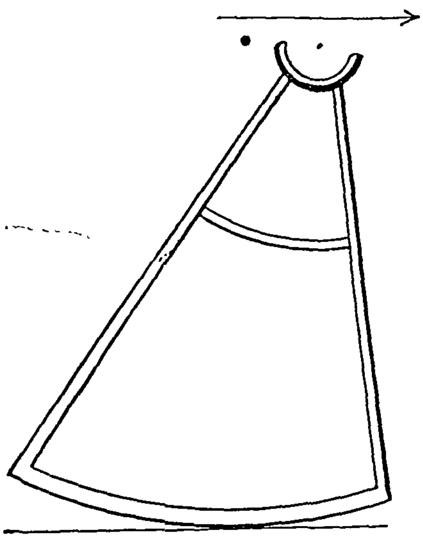


Fig. 5.—Diagram of a crutch showing in an exaggerated form one that rolls forward or to the right. The left arm is longer than the right. The center of curvature of the arc at the base is at the dot to the left, while the *center for* the handle is the small dot above the sh[illegible] rest.

The one-legged men that have tried these crutches assure me that they are a great improvement over the old form. These rolling crutches have been worked out so recently, however, that more actual use by cripples is necessary *to* test their practicality. To

is three-quart

long, gliding one; and from my use

ground, up hill and down, as well

nd slippery pavements, the performance fully justifies the long list of advantages described above.

This rolling step idea can be applied further, and I have now made up a rolling perineal crutch, a foot extension, a leg brace, a plaster cast of the leg and foot, an artificial leg, and even a cane, all made with a roller of varying lengths. All the leg appliances are made up with a curve whose radius is equal to the distance from the hip joint to the under surface of the rolling arc. All these work in the same way that the crutch described does. The limp is eliminated, and a long, easy, rolling, efficient step is taken.

SUMMARY

By reproducing the curve of rotation of the top of an ordinary crutch in metal, and firmly applying this to the base of the staff, I have made a rolling crutch. This is the sector of a wheel, and changes the motion at the shoulder to a simple straight-line progression in the direction the person is traveling. The crutch-step is made longer, more even, more secure, and far more efficient. In view of the great needs of the near future, I hope that some of these ideas will be tested out by others more competent; for I believe that with life and limb menaced by machinery and war as never before, there will be a place for the rolling crutch.

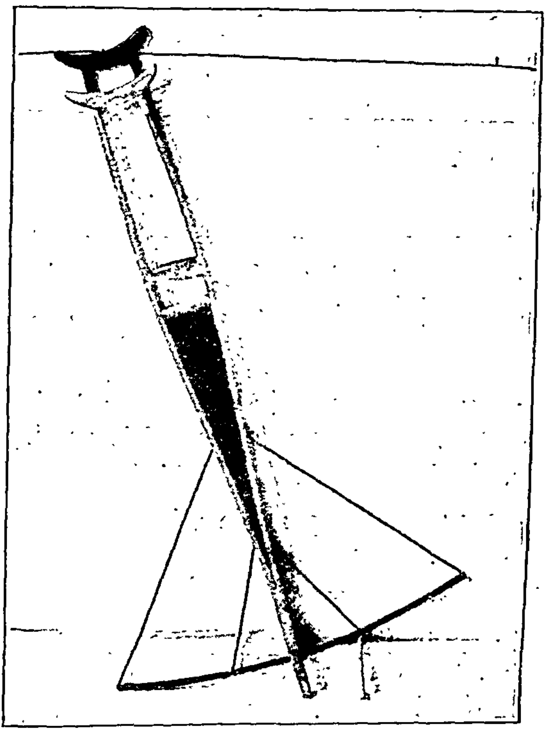


Fig. 6.—The folding crutch, compared with an ordinary crutch of the same length. The advantages of the former in length, angle with the ground, length of step, etc., are apparent. The line above shows a tracing of the path of the roller as the top moves forward.

616 Morgan Building.

Urine of Reptilians.—Vauquelin, in reporting the first analysis of reptilian urine, in 1822, stated that it was composed almost entirely of uric acid, and since that time this fact has been interpreted by various observers as an adaptation of life to the conditions in arid regions, where animals obtain their only external water supply in very limited quantities in the food substances, as this type of nitrogenous excretion involves practically no loss of water. The reptiles of arid regions have been known for some time to excrete practically all of their waste nitrogen in the form of uric acid and its salts, while, on the other hand, birds and aquatic and semiaquatic reptiles may excrete considerable amounts of urea.—A. O. Weese, *Science.*

---

* Demonstrated Dec.
City and County Medi

DYSTROPHIA ADIPOSOGENITALIS (FRÖHLICH'S SYNDROME)

REPORT OF CASE

J. J. MADIGAN, A.M., M.D.
Neurologist, Georgetown University and Washington Asylum, Washington, D. C.; Captain, M. R. C., U. S. Army
FORT THOMAS, KY.

THOMAS VERNER MOORE, Ph.D., M.D.
Director, Providence Psychiatrical Dispensary
WASHINGTON, D. C.

History.—A boy, aged 10, was brought to the Providence Psychiatrical Dispensary for general mental backwardness. He was the first born child. He was followed by a brother born at about the eighth month, who died when 2 weeks old. The next birth was a miscarriage, after which there were no more pregnancies. Venereal disease in the father or mother was denied. The family history of the father was negative. On the mother's side there was a history of various abnormalities. Her father had four brothers and three sisters, two brothers and two sisters being normal, while the other two brothers were described as having deformities of the feet, one of them also having some kind of convulsive seizures; and the other sister went blind at about 30. The mother of the patient was one of seven normal children. She had one maternal aunt and five maternal uncles, all normal.

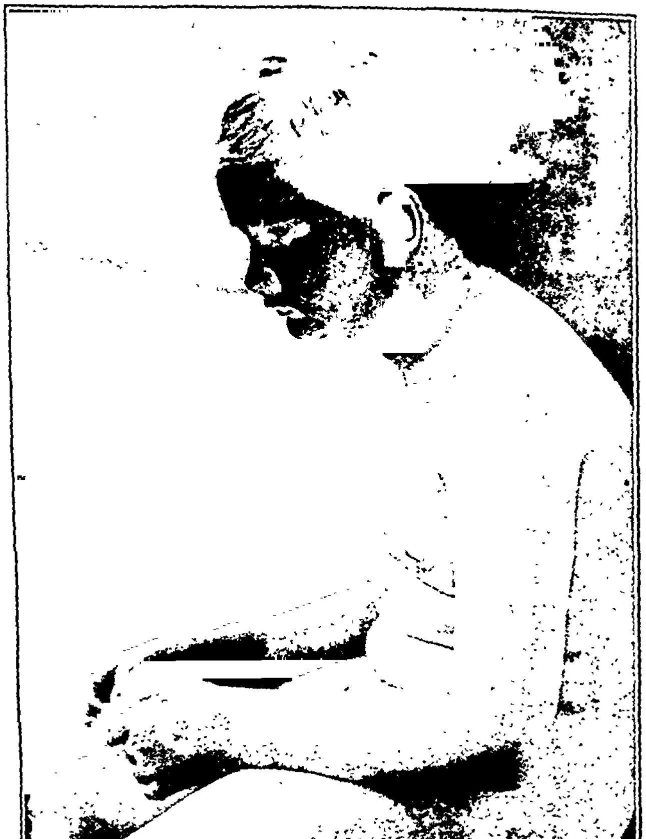


Fig. 1.—Patient, showing the typical adiposity of adiposogenital dystrophy, and the "maxillary prognathism," or, rather, retarded development of the mandible. The upper lip overhangs the lower.

In brief, then, we have a family history which is negative excepting the mother's paternal relatives, suggesting a defect in the germ plasm, which might be a mendelian recessive. This is confirmed by the fact that a daughter of the above mentioned aunt married a man whose ancestry is perhaps suspicious (his father died of "creeping paralysis" at 66), and their only child has had from birth an incurable chorea with spasticity of the legs, and though 8 years old, has never spoken.

The patient was a full term child, with normal delivery. His mother does not remember when he cut his first teeth, but he first walked and began talking at about 5 years of age. He did not stop bed wetting until after his ninth birthday. He had "typhoid pneumonia," as the mother describes it, when 2½ years of age; chickenpox when a baby; measles and whooping cough when 9. The present condition dated back apparently to birth. The child was only 3 or 4 months old when the father noticed the jerky movements of the eyes. He never complained of headache or any pain, and there was no history of vomiting that would lead one to suspect intracranial pressure. He had never been able to see, but played about his home in the county with ease, and at first sight one would not notice that he was blind.

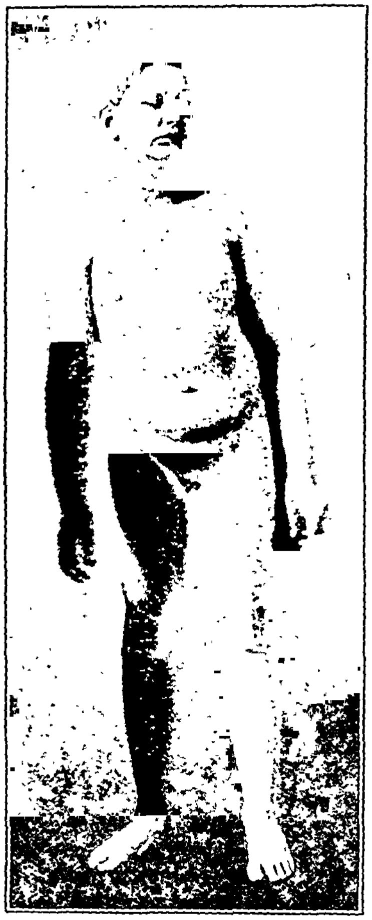


Fig. 2.—Patient, showing the typical adiposity and the genital dystrophy.

Physical Symptoms.—What struck the eye on looking at the patient was the general appearance: the excessive fat for a boy of his age, the feminine form and tapering fingers. When we add to that the fact of his blindness and find that he has a genital aplasia, we have the cardinal symptoms of Fröhlich's syndrome—dystrophia adiposogenitalis.

The symptoms are grouped according to Cushing's scheme:

1. Neighborhood Symptoms: There were no subjective discomforts that could be ascertained. Conversation with the patient, owing to defective speech and reduced mentality, was difficult, and there may have been more subjective symptoms than one would suppose.

There was deformation of the sella turcica. The roentgen ray revealed a flattened sella with the posterior clinoid processes destroyed and the anterior pressed down, suggesting a tumor of the hypophysis originating in the sella and growing up out of it and then pressing down on the clinoid processes.

There were evident visual disturbances. Only perception of light remained. The papillae were much reduced in size and very white. Dr. Henning, an ophthalmologist in Washington, made the following note: "Optic nerve presents a gray white atrophy of nerve head with small vessels. Retina has mottled appearance like a terrazzo floor, with small pigment lumps scattered irregularly and sparsely." There was no exophthalmos, but the eyes were deep sunken in the orbits. There was now a slow lateral nystagmus, which had been much more rapid several months before.

Nasopharyngeal symptoms were noted. Cushing mentions cerebrospinal rhinorrhea as an occasional symptom of pituitary tumor. The mother reported, in this case, a constant somewhat excessive discharge of a clear watery fluid, which of late had somewhat subsided. In the absence of laboratory examinations, one cannot lay much stress on this symptom.

2. General Pressure Symptoms: The classic pressure symptoms, headache, vomiting and choked disk, are absent. Taking this in connection with the chronic course of the disease, one would expect a benign tumor, which could probably be removed by operative interference.

3. Glandular Manifestations: The boy was 137.2 cm. (4 feet, 6 inches) tall. This means that he was about 6 cm. above the average height for 10 year old boys. This excess of growth might be due to a hyperfunction of the pituitary at some time in the patient's history.

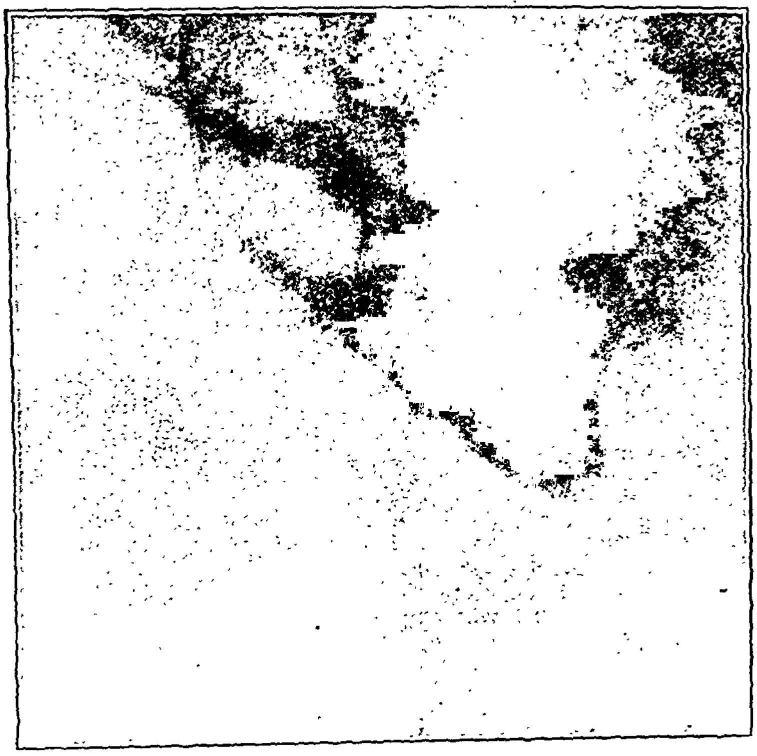


Fig. 3.—Appearance of sella turcica of patient: destruction of posterior clinoid processes, and the anterior process apparently pressed down.

The other symptoms pointed to a hypofunction of the gland—the tapering extremities, the marked and typical adiposity. The features were fine, and the skin was smooth, delicate and dry. The hair was abundant on the scalp, but was elsewhere lacking. The condition of the crines, however, was not of such diagnostic importance in a boy of 10 as it would be in an adult.

Another symptom that pointed to hypofunction of the gland was the *maxillary* prognathism as opposed to the *mandibular* prognathism of acromegaly. If one looked at the patient's maxilla and mandible, it was evident that the condition was not "due to any forward displacement of the sphenoid," as Cushing[1] supposes, but rather to retarded development of the mandible. The circumference of the head was 50.6 cm. ($19\frac{9}{10}$ inches)—about 2 cm., therefore, under the normal of 52.6.

The boy was not in the hospital long enough for a sugar tolerance test.

There was a marked polydipsia. A history of polyuria could not be obtained.

The temperature was normal. The blood pressure was 112 systolic, 70 diastolic.

In testing the mentality of the child, it was found that he could recognize many common objects by touch, repeat three numerals, and place the objects of the form board in their proper position by trial and error.

4. Symptoms Referable to Other Glands: There was a marked sexual aplasia that must have originated in a prenatal disturbance of growth. The penis was rudimentary, but rather large for clitoris. The mons veneris was very pronounced. The testicles were not descended, and a kind of scrotal membrane covered an "open space." The breasts were definitely developed, with evident mammae.

The thyroid gland was enlarged, palpable, and of rather firm consistency. The pulse was not accelerated; it was about 80 at the time of the examination.

The suprarenals were not seriously involved, although there was a dirty bronzing of the skin.

Over the sternum, just below the clavicle, there was an area of dulness, extending distinctly to the left, which merged into the cardiac dulness below. This might be due to an enlarged thymus.

There was no evidence of the involvement of other glands.

In 1901, Fröhlich[2] described what he termed "a case of tumor of the hypophysis without acromegaly." The cardinal symptoms that he pointed out were (*a*) adiposity, (*b*) genital dystrophy, (*c*) falling out of the hair after the onset of the disease, and (*d*) atrophy of the optic nerves.

In the later literature, this syndrome became known as dystrophia adiposogenitalis. The condition is associated with a tumor of the hypophysis or one in its neighborhood.

In 1908, Bartels[3] discussed the relation of the changes of the hypophysis to dystrophia adiposogenitalis. He mentions these three theories to explain this relationship:

1. Both tumor and dystrophy are due to inborn, coordinate germinal dispositions (*Keimanlagen*).
2. Changes in the hypophysis, due to the tumor, account for the dystrophy.
3. Not the changes in the hypophysis, but injury of a neighboring center at the base of the brain causes the changes.

Bartels adopts the first of these hypotheses.

The studies of Cushing render it abundantly evident that changes in the pituitary are frequently the cause of the dystrophy. But the cases which produce this evidence have their onset rather late in life.

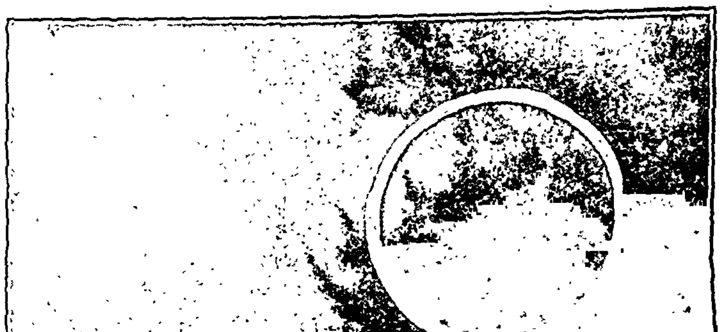


Fig. 4.—Normal sella turcica, with outlines dotted for comparison with Figure 3.

There is perhaps room for a small number of cases whose origin is prenatal, and in which a hereditary factor may be detected. In these, both the tumor and the dystrophy may be due, as Bartels maintains, to an inborn coordinate germinal disposition.

---

[1] Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912, p. 256.

[2] Fröhlich, Alfred: Ein Fall von Tumor der Hypophysis cerebri ohne Akromegalie, Wien. klin. Rundschau, 1901, **15**, 883-886; 906-908 (references to fifty-six articles on the subject).

[3] Bartels, M.: Ueber die Beziehungen von Veränderungen der Hypophysengegend zu Misswachstum und Genitalstoörungen (Dystrophia adiposo-genitalis), München. med. Wchnschr., 1908, **55**, 201-202.

The present case suggests precisely this possibility because:

1. There is a hereditary taint, suggested by the number of deformities in the mother's paternal relatives, and by the appearance of a cerebral defect in one of her paternal relatives who married a man of suspicious ancestry. All this goes to suggest a mendelian recessive.

2. The origin of the case is prenatal. The reasons for this are: (*a*) the assertion of the parents that the child never saw; (*b*) the fact that the father noticed the nystagmus when the child was only 3 or 4 months old; (*c*) the fact that the genital aplasia is such that it must date well back into the prenatal history of the child, and (*d*) the very small optic disks.[4]

ANTHRAX

A CASE OF B. ANTHRACIS SEPTICEMIA WITH RECOVERY

ROSCOE R. GRAHAM, M.B. (Tor.)
AND
HERBERT K. DETWEILER, M.B. (Tor.)
TORONTO, ONT.

Anthrax infection in the human being occurs with considerable rarity; but the instances in which the organisms are demonstrable in the circulating blood are very rare indeed. In this communication we describe in detail a case in which an anthracemia was present, followed by recovery.

The relation of human infection to animal infection has been established for many years. The path of infection lies through the medium of animal products, principally hides, of which those coming from China and Argentina furnish the most prolific source. The sites of the initial lesion in the human being are either cutaneous, pulmonary or intestinal. Of the cutaneous lesions, those arising in the neighborhood of the neck are most serious. In such instances collected[1] between 1899-1904, 40 per cent. led to a fatal issue. This may be explained by the presence of a very marked and far-reaching edema, which characterizes the fourth stage of clinical anthrax. The proximity of the respiratory passages makes the danger from edema in this area obvious.

The tendency of anthrax in man is to remain localized, but penetration may occur into the blood stream at any time and give rise to a fatal septicemia.[1] In searching the literature one is impressed with the lack of definite information regarding the results of blood cultures. No statistics of any value are obtainable on this point. All writers, however, seem to be agreed on one point, namely, that a septicemia is to be regarded as leading to a fatal termination in the vast majority of cases. While we have found[2] in the literature only one instance of anthracemia followed by recovery, we do not consider it likely that this case is the only one successfully treated, particularly in view of the apparent lack of laboratory investigation in many of the cases reported. It is the usual thing to find the various authors dealing only in generalities; and while we meet such statements as "The majority of anthracemias are fatal,"[3] the authors cite no definite cases of recovery.

The course of cutaneous anthrax may be divided into four stages, which are briefly:[1]

1. The presence of an insignificant wound with no sign or evidence of danger, which may remain as such for two or three days.

2. The appearance of a small pimple with a vesicle filled with a clear or blood-stained brownish fluid containing many bacilli, accompanied by the pricking or itching of the vesicle. This stage may last for from twenty-four to thirty hours.

3. Marked induration of the tissue underlying the vesicle, which has become flattened and has a livid color, marking the beginning of necrosis, which is surrounded by an edematous ring on which are formed vesicles which may coalesce. In the central dark eschar there are many bacilli. This stage lasts from one to two days.

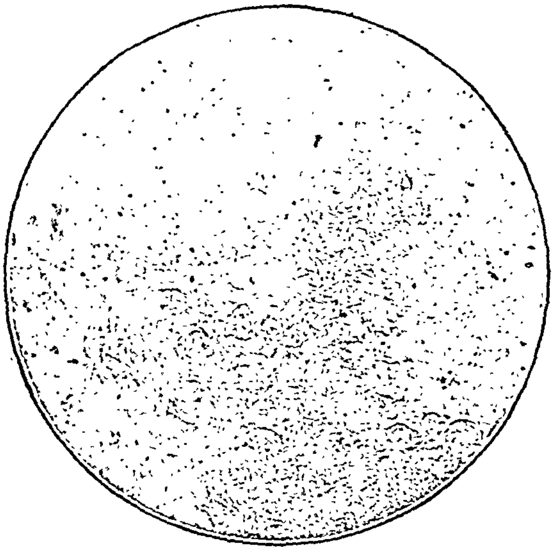


Fig. 1.—Gross picture of growth on agar plate, with typical "doll's hair" margin.

4. More or less rapid increase of the dark slough along with the edema. The latter may be extensive and very widely spread. Here, because of secondary infection, it is difficult to demonstrate bacilli. The size of this area is variable, and it bears no relation to prognosis.

REPORT OF CASE

E. M., man, aged 36, a tanner, admitted to the Toronto General Hospital under Dr. F. N. G. Starr, 8:30 p. m., Nov. 23, 1916, complained of a sore on the left anterior triangle of his neck, with swelling of the left side of the face and neck, extending down over the front of the chest to the junction of the third rib with the sternum.

November 20, he was working more closely than usual with the hides, and in the soaking process he was exposed a good deal to the dust arising from the handling. In the sweating process he often scraped the hides with his thumbnail to determine the progress of the separation of the hair. He also had a habit, when worried, of stroking his neck with his left hand. On the night of the 20th he shaved, and on the morning of the 21st he noticed a ridge half an inch long at the midpoint of the anterior border of the sternomastoid muscle, the surface of which was intact. The skin around it seemed a little thickened, and when he squeezed it between his fingers a little serum escaped. On the morning of the 22d, it had a hard top as large as the end of his thumb, and it began to feel sore. In the afternoon, when the top was removed by his physician, a little hard, dead tissue was found, but no pus. In the evening he had an elevation of temperature, pain in the back and a headache. On the morning of the 23d the area was more painful, and the ridge extended down to the thyroid cartilage. There was no swelling on his chest or his cheek. In the afternoon he left for Toronto and, on his way down, the swelling extended down over his chest and up over the side of the face.

---

[4] In addition to the references already given, the following will lead one to the rather extensive literature on this syndrome:
Mattiolo, G.: Contributo alla conoscenza della distrofia ipofisgenitale, Riv. di Patol. nerv., 1914, **19**, 513-529 (reports of three cases; a good bibliography).
Strauch, August: Infantilism, Am. Jour. Med. Sc., 1914, **148**, 247-266 (general article with good bibliography).
Waltzfelder, Eduard: Implantation of Pituitary Gland in a Case of Congenital-Genital Adiposity (Dystrophia Adiposo-Genitalis), New York Med. Jour., 1914, **100**, 1002-1004.

[1] Encyclopaedia Medica, 1915, **1**.

[2] Bromet, E. A.: Case of Anthracaemia with Three Separate Points of Inoculation on the Right Arm; Recovery, West London Med. Jour., 1901, **6**, 129.

[3] Kolmer: Infection, Immunity and Specific Therapy, 1

Condition on Admission.—The patient's temperature was 99, and the pulse 105. A sloughing area the size of a quarter was present over the midpoint of the sternomastoid muscle. The skin was hard and brawny, which condition extended well down on the chest and up on the face. Forty c.c. of anti-anthrax serum were given subcutaneously, and the tissues surrounding the sloughing area were injected with 40 per cent. alcohol. A culture was also made from this area. Considerable mucus in the throat, the result of the widespread edema, caused a good deal of irritation.

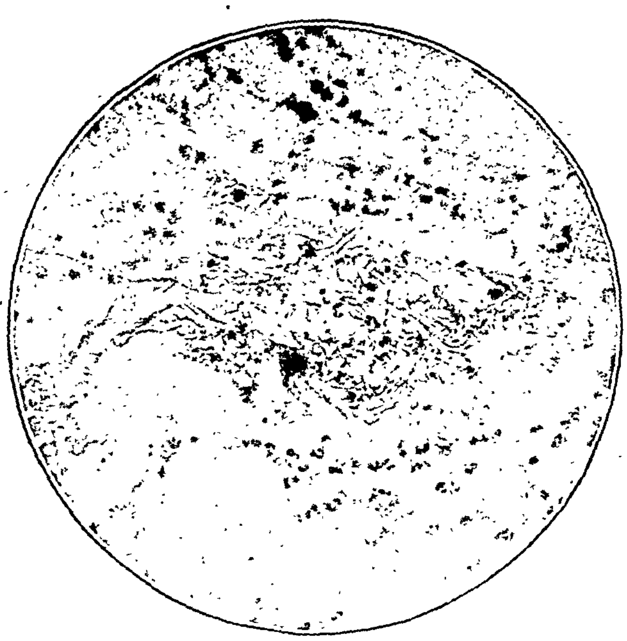


Fig. 2.—Large number of bacilli in tissue removed.

Progress.—November 24, in the morning, the temperature was 103.7 and the pulse 140. The edema had increased locally and was more widely spread. The respirations were very labored, owing to the increase of mucus in the larynx. A wide local excision under general anesthesia was performed, and alcohol was injected around the margins. Steam inhalations of compound tincture of benzoin were administered. The cultures taken the previous day yielded *B. anthracis* (Fig. 1), and sections of the tissue showed many bacilli (Fig. 2).

November 25, the pulse was from 132 to 146, and of very poor volume. The temperature ranged from 102.3 to 104. Twenty c.c. of anti-anthrax serum were administered subcutaneously.

November 26, the pulse and temperature remained about the same. Respirations became more labored. The patient became very restless and nervous, and could not sleep. A blood culture was taken.

November 27, the general condition had not improved. The edema became much worse over the face, neck and chest, and had extended to the upper part of the left arm, the whole area looking very red and acutely inflamed. The blood culture revealed the presence of the bacilli in the circulating blood. At 1 p. m. we gave 100 c.c. of chloramin-T (Dakin) along with 80 c.c. of anti-anthrax serum, intravenously. At 1:30 p. m. the patient had a severe chill which lasted fifteen minutes; the pulse was 130, and the temperature 104.2. At 5:30 p. m., the patient was sleeping with a pulse of 114 and a temperature of 101. At midnight the pulse was 100 and the temperature was 99.4.

November 28, another blood culture was found to be negative. The evening pulse rate was 98; temperature was 100.

November 29, the maximum temperature was 98.4, the pulse 92. The patient slept a great deal, and his breathing was much more comfortable. A blood culture proved to be negative.

From this date the patient's convalescence was uneventful, no untoward symptoms manifesting themselves. The wound was exceedingly slow in healing, a black, leathery eschar having formed over the wound which did not disappear for seven weeks and then only when digested with a papain preparation. It was impossible to separate it by means of forceps. The edema persisted for even a longer time before it disappeared.

COMMENT

The points of interest in this case are:

1. The way in which the disease exhibited the characteristic four stages of cutaneous anthrax.
2. The persistent increase in symptoms, and the presence of *B. anthracis* in the circulating blood, despite local excision and subcutaneous injection of serum.
3. The sudden response to intravenous use of chloramin and serum in large doses, resulting in negative blood culture in thirty hours, and remaining negative despite the fact that no further specific therapy was used.
4. The persistence of the edema of the skin and the slow healing of the wound.

112 College Street—Toronto General Hospital.

NONROTATED ILEUM WITH FATAL INTESTINAL OBSTRUCTION

DUE TO OCCLUSION OF THE ILEUM BY THE OVERRIDING COLON

ELMER D. TWYMAN, M.D.
KANSAS CITY, MO.

The unique anatomic relationship of the terminal ileum and the cecum and ascending colon is the reason for reporting this case of fatal intestinal obstruction. The condition present resembled in a general way the condition found in mobile colon, except that the ascending colon had overridden and become secondarily adherent on a coil of the terminal ileum. Still other coils of the ileum lay to the right side of the ascending colon and cecum. Or, conversely, this part of the ileum failed to rotate and descend, whereas the cecum did so to the usual extent.

The dominant features of the anomaly were as follows: About 30 inches from the termination of the ileum in the ileocecal valve, the ileum passed under the posterior parietal peritoneum and ran upward and outward to a point 2 inches below the hepatic angle of the colon. There it turned sharply outward under the colon and emerged on its lateral side, acquiring a mesentery, and then coursed downward, describing several loops to the outer side of the ascending colon, and passing around to the left of the cecum, entering the ileocecal valve in the usual way. The head of the cecum was normal and free from adhesions, and the appendix was free and normal in color and size. A Meckel's, or true, diverticulum, 3 cm. long, with free end, lay parallel to the colon. It was given off from the ileum an inch and a half after its emergence from under the colon. The diverticulum was constricted at its base and again at a point half way to its tip, which tapered to a blunted end. There was no band or other connection with the umbilicus. There were redness and swelling, and there were some adhesions of the diverticulum to the surrounding structures. The caliber of the ileum on the proximal side of the diverticulum was smaller than just beyond it. The ileum, after passing beneath the posterior parietal peritoneum, was collapsed, whereas the remaining or free portion was dilated to about the diameter of the colon. The retroperitoneal portion was crossed by a number of fibrous bands, which may have caused the obstruction. At any rate, the bowel on the proximal side of these bands was tremendously dilated, whereas the terminal portion was collapsed. The vessels carrying the circulation of the ascending colon could also be seen crossing the ileum.

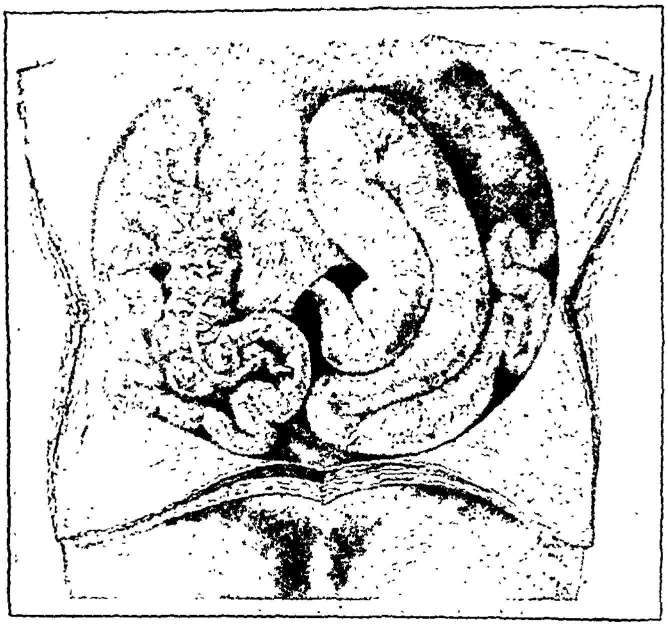
REPORT OF CASE

History.—Mr. V., aged 54, referred through the courtesy of Dr. J. W. Robertson, and presenting a negative family history, was the father of three healthy children. He had never been a well man, but had suffered much from some chronic digestive disorder. He had to be particularly careful that his food should not be bulky, and frequently had to take cathartics. He was thin, morose and distrustful, a hard worker, and had spent all of his life on a farm. In addition to his "indigestion," as he called it, he had had several attacks of diarrhea following periods of constipation. After these attacks he complained of abdominal tenderness. There was no history of a serious illness.

The last attack began with a diarrhea, which persisted all of one night, and was attributed by the patient to a dietetic indiscretion. There were griping pains, which increased in severity. There was some gaseous distention. By morning, vomiting of a serous yellowish material began. The stools were at first productive, but soon became thin with mucus and blood. Occasionally, after severe straining, the vomitus was of a more stercoraceous odor and appearance as the illness progressed. In the morning, on arrival of medical assistance, the diarrhea was temporarily checked, and the pain was relieved by treatment; but the vomiting continued and the distention increased.

The vomitus exceeded the amount of fluid ingested by a considerable amount, and as a consequence the patient was burning with thirst. The pulse finally became small, weak and rapid, and later almost imperceptible. Returns from enemas in the latter part of the day were nil, and some castor oil which had been given failed to act. The mentality became cloudy and the tongue dry and shrunken. It was in this condition that I found the patient on the afternoon of the day following the onset. On account of the history it was considered likely that the obstruction was due to a congenital cause. There appeared to be a massing or difference of rigidity over the right upper rectus muscle. After removal to the hospital the patient was given 1,000 c.c. of Hogan's solution (1 per cent. sterile gelatin in physiologic sodium chlorid solution) *intravenously*. The blood pressure rose in five minutes from 60 mm. of mercury to 110 mm., and inside of an hour to 140 mm. The tongue became moist, and the mentality clearer. The stomach was washed every two hours, as recommended by Jackson,[1] and an attempt was made to carry out his plan for deferring operation. Later in the evening, physiologic sodium chlorid solution was given subcutaneously. Solutions of sodium bicarbonate and glucose were given by continuous drop proctoclysis. At first the pulse increased in strength and volume, and the rate fell. The vomiting stopped temporarily, and the tongue became more moist. Toward morning, however, the same serous vomiting began again, and the tongue became dry and parched. In the morning, after consultation, it was decided to perform an exploratory operation. In a preliminary discussion of the procedure the patient definitely refused to have an enterostomy. He cared little for life in any case, and not at all at the cost of a fecal fistula.

Operation and Result.—A right rectus incision was made, and the condition described in the introduction was discovered. It was at once apparent that the resection or untangling of such a condition was a measure not suited to the serious condition of the patient. A side to side anastomosis of the ascending colon above the ileac crossing was hurriedly made with the ileum proximal to the obstruction. This was performed with less difficulty than usual, owing to the fact that the thickness of the two intestine walls was about the same. The abdominal wound was closed without drainage. The stomach was washed out and 6 ounces of olive oil injected into it and allowed to remain. On the patient's return to bed, Hogan's solution was again injected. The bowels at once began to move frequently and copiously, and the distention decreased. The condition of the patient at first appeared encouraging, but by a gradual loss of strength he sank into coma and died at the end of twenty-four hours. Death appeared to be due to toxemia. The distention had subsided and the vomiting had stopped, but the pulse flagged and the tongue dried up again. The sodium chlorid solution was not retained, but was excreted by the skin, bowels and kidneys. Permission to perform a postmortem was refused by the family.



Condition found in case of nonrotated ileum.

COMMENT

The primary cause of a condition like this probably lies in a miscarriage of the usual embryonal shiftings of the intestinal tract. It is strange that a man could have had such a condition for fifty-four years and not have an obstruction before. It seems likely that there existed a partial obstruction due to the many bands that crossed the ileum in its retroperitoneal course, and that this obstruction became absolute by reason of the swelling of the intestinal coats from an inflammatory reaction that caused the diarrhea, and the redness and swelling of the Meckel's diverticulum. The bands in the peritoneum were also probably shortened thereby. Byron Robinson[2] argues the probability of appendicitis in the fetus causing the adhesive tendencies responsible for the nonrotation of the colon. The Meckel's diverticulum need not be discussed other than to suggest that previous inflammatory attacks may have accounted for the patient's previous attacks of diarrhea. An adhesion of this organ may have occurred, fixing it in the right hypochondrium at a certain stage in the rotation of the intestine. This would have prevented its further descent and that of the terminal ileum. If, then, the rotation of the colon and the remainder of the small intestine progressed normally, a condition such as was described in the opening paragraph would have been produced. It would only remain for the colon, which must have descended as a mobile colon, to adhere to the posterior parietes and to the small intestine, which it had overridden.

---

[1] Jackson, J. N.: Intestinal Obstruction; Review of Experimental Observations, with Practical Suggestions, Jour. Missouri Med. Assn., 1917, **14**, 377.

[2] Robinson, Byron: Unusual caeca in One Hundred and Thirty Autopsies, Gaillard's Med. Jour., 1895, **61**, 307.

The rotation of the large and small bowels in the human fetus has been accurately described by Huntington,[3] Kelly,[4] Mayo,[5] and others, and many cases of nonrotation have been reported. In these descriptions the movements and positions of the small bowel have been regarded as secondary to those of the colon, and given only perfunctory notice. However, it can be readily seen that the small bowel must also describe the same arc that the colon does in order to come to lie to the left of the colon. In the complete nonrotation cases the fetal condition persists, that is, the small intestine lies entirely to the right of the colon, the duodenum is entirely uncovered, and the omentum is missing from the small bowel.

Kelly and Huntington give the impression that the so-called cecum mobile, or, more accurately, mobile colon, is the usual state of affairs until the cecum has fully descended, whereupon a fusion takes place between the visceral peritoneum on the back of the ascending colon and the parietal peritoneum beneath it; and an obliteration of the same takes place and the usual type of unmobile cecum is produced.

Dr. A. E. Hertzler holds a different view. He demonstrated to me ten hardened fetuses of various ages and stages of rotation, stating that they were the same as a much larger number that he had collected. In all of these except one, the fusion or fixation of the colon to the posterior parietal wall had taken place before the cecum had reached the iliac fossa, some as high as the subhepatic position; and descent was evidently proceeding with the colon in this condition, as respects fusion with the posterior wall, that is, in the adult state.

It is evident that some other explanation of the observed facts must be sought in the case under consideration, or else that descent as a mobile cecum with later fusion of the layers actually did take place. Indeed, Hertzler showed me one fetus in which all the conditions of this case were fulfilled, excepting the secondary fusion. The mobile colon actually overlay the small intestine in the same manner. Dr. Jabez N. Jackson mentioned a similar finding in a case seen at operation. It is evident, therefore, that both methods of descent and fixation occur, whichever may be the usual manner.

In so brief a paper as this, it is not possible to discuss nonrotation in general. Judging from a perusal of the literature,[6] nonrotation cases appear to fall into the subjoined groups, an arrangement which is offered tentatively as comprehending the reported facts.

1. Nonrotation complete, of both large and small bowels.
2. Nonrotation, partial or incomplete, of both bowels.
3. Overrotation, causing pelvic position of cecum and appendix.
4. Malrotation, which may be normal in extent, but abnormal in that the colon comes to overlie or underlie some of the organs or membranes in a manner differing from the normal.
5. Nonrotation of the small intestine, or a part of it (that of the colon and the remainder of the small bowel having been normal in extent).

In the fifth group comes the case herein reported, as yet an isolated instance.

SUMMARY

This case tends to support two theories previously advanced, and illustrates a new phase of intestinal nonrotation:

1. Inflammatory adhesive processes in the peritoneum may occur in utero.
2. At least in some cases, fusion of the peritoneum on the back of the ascending colon to the posterior parietal wall does not occur until after full rotation and descent have taken place.
3. Nonrotation of a part of the small bowel alone may occur, a phase of intestinal nonrotation not previously reported in the literature available to me.

406 Waldheim Building.

---

[3] Huntington, Anatomy of the Peritoneum, New York, Lea & Co., 1903.

[4] Kelly and Hurdon: The Vermiform Appendix and Its Diseases, Philadelphia, W. B. Saunders Company, 1905.

[5] Mayo: Failure of the Colon to Rotate, Med. Rec., New York, 1912, **81**, 401.

[6] In addition to the references already given, a list of the articles consulted during the preparation of this paper is appended. It is probably not a complete list of the literature on the subject, as the cases reported are numerous, and are scattered under different titles. A case of nonrotation of the small bowel may thus have been overlooked.

Armstrong: Abnormal Positions of the Duodenum, Tr. Am. Surg. Assn., 1910, **28**, 299.

Cunningham: Human Anatomy, New York, William Wood & Co., 1915.

Delatour: Persistent Embryonal Types of Large Intestine, Ann. Surg., 1915, **61**, 73.

Des Comps: Rev. de chir., *1916*, **51**, *109; Internat. Abstr. Surg.*, 1916, **8**, 388.

Fowler: Persistent Developmental Anomalies of the Position of the *Large Intestine, Especially the Ascending Colon and Cecum,* Med. Rec., New York, 1916, **89**, 353.

Malcolm: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, *1911*, **2**, *1401.*

Maylard: A Treatise on the Surgery of the Alimentary Canal, London, J. and A. Churchill, 1896.

Mayo: Removal of the Right Colon: Indications and Technic, Collected Papers, Mayo Clinic, 1916, **89**, 353.

Prince: Transposition of the Stomach and Duodenum; Concealment of the Colon Behind the Duodenum; Strangulation of the Colon, Rapidly Fatal, Am. Jour. Med. Sc., 1853, n. s., **25**, 558.

Smith: A Statistical Review of the Variations in the Anatomic Positions of the Cecum and the Processus Vermiformis in the Infant, Anat. Rec., 1911, **5**, 549.

Effects of Heat, Cold and Fatigue in Encouraging Infections.—Frogs ordinarily do not become sick if injected with anthrax germs, a very deadly germ which readily kills cattle and also men. If such frogs, however, are kept in a warm room at blood-heat temperature, they will rapidly become sick and die of anthrax. In the case of chickens, which also do not readily take anthrax, sickness and death follow the injection of anthrax germs provided the chickens are chilled by keeping them standing in cold water. White rats ordinarily are quite resistant to anthrax germs. Yet they rapidly become sick and die after being injected with anthrax germs provided they have first been fatigued. It is a simple matter to fatigue a rat in the laboratory by making the animal run a treadmill. Various animals can be readily infected with disease germs, to which they are ordinarily resistant, if their resistance is reduced by alcohol.—Circular, Bureau of Public Health Education, to Soldiers in the Army Camps Regarding Pneumonia, etc.

SUBCUTANEOUS INJECTIONS OF OXYGEN IN THE TREATMENT OF BALANITIS GANGRAENOSA

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

Erosive and gangrenous balanitis, the *balanoposthite érosive circinée* of Berdal and Bataille,[1] is a fairly uncommon affection, even in large venereal clinics, but its serious character when unrecognized entitles it to more frequent and extended notice in medical literature than it has received up to the present time.

The disease is due to the symbiosis of a fusiform bacillus and a spirochete, which structurally resemble those found in Vincent's angina. The causative organisms were originally described by Müller and Scherber.[2] Culturally, they are anaerobic, and both stain readily with dilute carbolfuchsin, a tinctorial reaction which distinguishes the vibrio from the *Spirochaeta pallida* of Schaudinn and Hoffmann.

The lesions, which develop quickly on the glans or foreskin, usually are single, in contradistinction to chancroid, and do not give rise to inguinal adenitis. The pus is of a characteristic, foul odor. The local and constitutional symptoms vary with the severity of the infection. Owing to the acute character of the inflammatory process, phimosis is an early and annoying complication. Extension of the disease commonly is rapid, and the amount of tissue destruction may be very great.

Of the various constitutional remedies, arsphenamin (salvarsan), as a spirocheticide, holds first place. Locally, oxygen-bearing preparations, such as hydrogen peroxid, are the most efficient.

Examples of gangrenous balanitis occurring in this country have been described by Corbus and Harris,[3] Corbus,[4] Pusey,[5] and Owen and Martin.[6]

The following case is a fairly typical one:

Separation of slough following oxygen injections into the subcutaneous tissues, in balanitis gangraenosa.

F. B., real estate promoter, aged 54, referred by Dr. Frank B. Ellis, of Garden City, Mo., had visited the city a fortnight before his call on me, and at that time had indulged in a prolonged debauch; consequently his recollection regarding the train of events that had led up to the infection was somewhat indistinct. He strongly denied exposure of any kind to venereal disease.

Twenty-four hours after the patient's return home following the debauch, he first noticed a small ulcerated area on the dorsum of the foreskin, at a point overlying the corona. This lesion rapidly increased in size, the central portion becoming blackish, and the entire foreskin became swollen and edematous. In addition to the phimosis, there was a considerable discharge of foul-smelling pus from beneath the inflamed skin covering the glans.

When I first saw the patient, five days after the onset of the disease, almost the entire dorsum of the penis was involved, the skin and subcutaneous tissues being soft and gangrenous. During the following thirty-six hours the infection continued to spread, despite the frequent and liberal use of hydrogen peroxid, by irrigation and by moist packs.

At this time subcutaneous injections of oxygen were begun, by means of an ordinary hypodermic needle connected to an oxygen tank through a small rubber tube, and repeated every four hours. The normal tissue surrounding the affected area was first treated, the flow of gas being regulated by means of a small screw clamp encircling the outlet tube. Afterward the involved structures also were thoroughly impregnated with the gas. Within six hours the progress of the disease was checked, and within twelve hours it was completely under control. Shortly afterward the slough began to separate, and recovery, aside from the deformity resulting from loss of tissue, was prompt and uneventful.

726 Lathrop Building

---

[1] Berdal and Bataille: Méd. mod., 1891, **2**, 340, 380, 400, 413.

[2] Müller and Scherber: Arch. f. Dermat. u. Syph., 1905, **77**, 77.

[3] Corbus, B. C., and Harris, F. G.: Erosive and Gangrenous Balanitis, The Journal A. M. A., May 8, 1909, p. 1474.

[4] Corbus, B. C.: Erosive and Gangrenous Balanitis, The Journal A. M. A., June 7, 1913, p. 1769 (with good photomicrographs).

[5] Pusey: Principles and Practice of Dermatology, New York, 1917, p. 532.

[6] Owen and Martin: Jour. Lab. and Clin. Med., 1917, **2**, 862 (with good photomicrograph).

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF BILATERAL CASES OF PULMONARY TUBERCULOSIS

HERBERT F. GAMMONS, M.D.
CARLSBAD, TEXAS

The use of artificial pneumothorax in the treatment of tuberculosis has received much attention in the last few years.

At present there are many institutions which do not make use of this valuable remedy in the treatment of pulmonary tuberculosis. This is apparently due in part to the belief of many physicians that it is not applicable to patients who have an infection in both lungs. Furthermore, as most of the patients who have pulmonary tuberculosis have a lesion in both lungs, this reason would seem plausible to a certain extent.

If a patient is not doing well, however, and if both lungs are involved, the one more than the other, the physician must resort to radical measures.

Some time previous to the writing of this article, a patient at the state sanatorium, in whom the disease was far advanced in both lungs, left us, after being told that we could not help her. She went to Colorado, where she was given the artificial pneumothorax in the left lung, which was very active, with fine and surprising results.

Since this patient did so well, I have tried many bilateral cases with good results, and I am confident that a more careful study of the remedy in this type of cases will result in a more general use of it in institutions as well as in private work.

Beggs[1] says, "A last resort is a lost resort." Therefore, patients in an advanced stage of the disease should be treated after a very short observation.

After reviewing the percentage of cases found suitable for pneumothorax, which ran from 5 to 10 per cent., Riviere says:

---

[1] Beggs, W. N.: Am. Rev. Tuberc., 1917, **1**, 509.

the probability of appendicitis in the fetus causing the adhesive tendencies responsible for the nonrotation of the colon. The Meckel's diverticulum need not be discussed other than to suggest that previous inflammatory attacks may have accounted for the patient's previous attacks of diarrhea. An adhesion of this organ may have occurred, fixing it in the right hypochondrium at a certain stage in the rotation of the intestine. This would have prevented its further descent and that of the terminal ileum. If, then, the rotation of the colon and the remainder of the small intestine progressed normally, a condition such as was described in the opening paragraph would have been produced. It would only remain for the colon, which must have descended as a mobile colon, to adhere to the posterior parietes and to the small intestine, which it had overridden.

The rotation of the large and small bowels in the human fetus has been accurately described by Huntington,[3] Kelly,[4] Mayo,[5] and others, and many cases of nonrotation have been reported. In these descriptions the movements and positions of the small bowel have been regarded as secondary to those of the colon, and given only perfunctory notice. However, it can be readily seen that the small bowel must also describe the same arc that the colon does in order to come to lie to the left of the colon. In the complete nonrotation cases the fetal condition persists, that is, the small intestine lies entirely to the right of the colon, the duodenum is entirely uncovered, and the omentum is missing from the small bowel.

Kelly and Huntington give the impression that the so-called cecum mobile, or, more accurately, mobile colon, is the usual state of affairs until the cecum has fully descended, whereupon a fusion takes place between the visceral peritoneum on the back of the ascending colon and the parietal peritoneum beneath it; and an obliteration of the same takes place and the usual type of immobile cecum is produced.

Dr. A. E. Hertzler holds a different view. He demonstrated to me ten hardened fetuses of various ages and stages of rotation, stating that they were the same as a much larger number that he had collected. In all of these except one, the fusion or fixation of the colon to the posterior parietal wall had taken place before the cecum had reached the iliac fossa, some as high as the subhepatic position; and descent was evidently proceeding with the colon in this condition, as respects fusion with the posterior wall, that is, in the adult state.

It is evident that some other explanation of the observed facts must be sought in the case under consideration, or else that descent as a mobile cecum with later fusion of the layers actually did take place. Indeed, Hertzler showed me one fetus in which all the conditions of this case were fulfilled, excepting the secondary fusion. The mobile colon actually overlay the small intestine in the same manner. Dr. Jabez N. Jackson mentioned a similar finding in a case seen at operation. It is evident, therefore, that both methods of descent and fixation occur, whichever may be the usual manner.

In so brief a paper as this, it is not possible to discuss nonrotation in general. Judging from a perusal of the literature,[6] nonrotation cases appear to fall into the subjoined groups, an arrangement which is offered tentatively as comprehending the reported facts.

1. Nonrotation complete, of both large and small bowels.
2. Nonrotation, partial or incomplete, of both bowels.
3. Overrotation, causing pelvic position of cecum and appendix.
4. Malrotation, which may be normal in extent, but abnormal in that the colon comes to overlie or underlie some of the organs or membranes in a manner differing from the normal.
5. Nonrotation of the small intestine, or a part of it (that of the colon and the remainder of the small bowel having been normal in extent).

In the fifth group comes the case herein reported, as yet an isolated instance.

SUMMARY

This case tends to support two theories previously advanced, and illustrates a new phase of intestinal nonrotation:

1. Inflammatory adhesive processes in the peritoneum may occur in utero.
2. At least in some cases, fusion of the peritoneum on the back of the ascending colon to the posterior parietal wall does not occur until after full rotation and descent have taken place.
3. Nonrotation of a part of the small bowel alone may occur, a phase of intestinal nonrotation not previously reported in the literature available to me.

406 Waldheim Building.

---

[3] Huntington, Anatomy of the Peritoneum, New York, Lea & Co., 1903.

[4] Kelly and Hurdon: The Vermiform Appendix and Its Diseases, Philadelphia, W. B. Saunders Company, 1905.

[5] Mayo: Failure of the Colon to Rotate, Med. Rec., New York, 1912, **81**, 401.

[6] In addition to the references already given, a list of the articles consulted during the preparation of this paper is appended. It is probably not a complete list of the literature on the subject, as the cases reported are numerous, and are scattered under different titles. A case of nonrotation of the small bowel may thus have been overlooked.

Armstrong: Abnormal Positions of the Duodenum, Tr. Am. Surg. Assn., 1910, **28**, 299.

Cunningham: Human Anatomy, New York, William Wood & Co., 1915.

Delatour: Persistent Embryonal Types of Large Intestine, Ann. Surg., 1915, **61**, 73.

Des Comps: Rev. de chir., 1916, **51**, 109; Internat. Abstr. Surg., 1916, **8**, 388.

Fowler: Persistent Developmental Anomalies of the Position of the Large Intestine, Especially the Ascending Colon and Cecum, Med. Rec., New York, 1916, **89**, 353.

Malcolm: Two Rare Abnormalities Observed in the Course of Operations, Lancet, London, 1911, **2**, 1401.

Maylard: A Treatise on the Surgery of the Alimentary Canal, London, J. and A. Churchill, 1896.

Mayo: Removal of the Right Colon: Indications and Technic, Collected Papers, Mayo Clinic, 1916, **89**, 353.

Prince: Transposition of the Stomach and Duodenum; Concealment of the Colon Behind the Duodenum; Strangulation of the Colon, Rapidly Fatal, Am. Jour. Med. Sc., 1853, n. s., **25**, 558.

Smith: A Statistical Review of the Variations in the Anatomic Positions of the Cecum and the Processus Vermiformis in the Infant, Anat. Rec., 1911, **5**, 549.

Effects of Heat, Cold and Fatigue in Encouraging Infections.—Frogs ordinarily do not become sick if injected with anthrax germs, a very deadly germ which readily kills cattle and also men. If such frogs, however, are kept in a warm room at blood-heat temperature, they will rapidly become sick and die of anthrax. In the case of chickens, which also do not readily take anthrax, sickness and death follow the injection of anthrax germs provided the chickens are chilled by keeping them standing in cold water. White rats ordinarily are quite resistant to anthrax germs. Yet they rapidly become sick and die after being injected with anthrax germs provided they have first been fatigued. It is a simple matter to fatigue a rat in the laboratory by making the animal run a treadmill. Various animals can be readily infected with disease germs, to which they are ordinarily resistant, if their resistance is reduced by alcohol.—Circular, Bureau of Public Health Education, to Soldiers in the Army Camps Regarding *Pneumonia, etc.*

Clinical Notes, Suggestions, and New Instruments

A RUBBER ENVELOP ABDOMINAL PAD

Dougal Bissell, M.D., New York
Fellow of the American College of Surgeons; Attending Surgeon, Woman's Hospital in the State of New York

At a meeting of the New York Obstetrical Society, Dec. 11, 1917, I made a preliminary report on a device I am now using in abdominal work, for the purpose of keeping the intestine away from the field of operation without inflicting injury to the peritoneal covering. It may be of interest in this connection to recall that the first material popularly adopted to prevent the intestines from protruding from the abdominal wound and from entering the field of operation was the elephant ear, or flat sea sponge. Next in order was gauze, the introduction of which encountered much opposition. Gauze was used in the form of pads or strips, first dry, then wet, and more recently, gauze pads dipped in melted wax. The sea sponge was soft and supposed to be nonirritating to the peritoneum; but in reality it was irritating, as it held in its interstices innumerable silicon needles which were very sharp and constantly in action and being dislodged. The particular reason for the sponge holding its sway for so many years was its power of absorption; but when it was discovered that complete sterilization of it was not always possible without destroying its usefulness, it was abandoned, and gauze was substituted. Although gauze has not the same absorptive capacity as the sea sponge, it can be sterilized without injury, and for that reason, chiefly, it was substituted for the sponge and has ever since been in vogue. Its roughness, however, has long been recognized as acting injuriously to the peritoneum; gauze, therefore, is objectionable. Many efforts have been made to eliminate this objection; one of the best is the wax gauze pad mentioned before. Though this pad possesses some advantage over the plain gauze pad, it has no power of absorption, and when it is manipulated in the abdomen, particles of wax may break off and, as foreign bodies in the peritoneal cavity, may become disturbing elements.

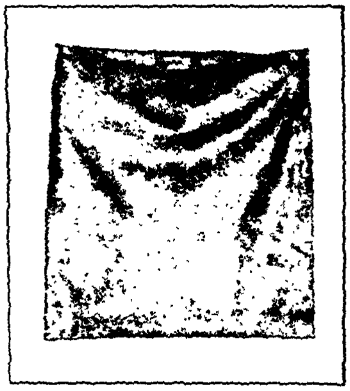


Fig. 1.—A rubber envelop, 8 by 8 inches, with two openings in the middle of its reinforced free borders.

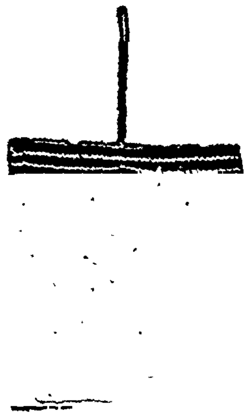


Fig. 2.—A cotton towel pad of four thicknesses, measuring a little less than the envelop, with a 10-inch loop of tape attached.

There is a striking similarity in the evolution of the technic for protecting the peritoneum from infection and injury by the hand, and that of protecting it by means of the rubber envelop to be described. The hand was first used uncleansed, as was the sea sponge. Next it was washed and further cleansed in a mild solution of phenol (carbolic acid), as was the sea sponge. The cotton glove was then introduced, at about which time the gauze pad was substituted for the sponge. Next followed the only positive and practical protection, namely, the rubber glove, and now the rubber envelop, in which there is a resisting and an absorbing pad.

This rubber envelop is made from ordinary rubber dam cut into sheets of 16 by 8 inches and folded so as to measure 8 by 8 inches. The lateral borders of the larger size envelop are glued together with rubber cement, the remaining free edges are folded on themselves to an extent of one-half inch or more and thus cemented, and through the middle of each reinforced border, an opening is made sufficiently large to permit the passing of the tape attached to the pad within.

The material out of which the pad within the envelop is made should possess considerable resistance and pliability. As the result of experiments, I have found that four thicknesses of a cotton towel best meet these requirements. The edges of these four layers are sewed together, and a tape 10 inches or more in length is doubled on itself and sewed to the middle of one border. The measurements of these pads are just a little less than those of the envelops. After being placed in the envelop, the pad is kept in position, and the envelop is closed by the passing of the tape through one and the other opening in the free borders of the envelop. Although the pad is in this manner prevented from coming in contact with the intestines, the envelop is not completely closed, with the result that fluids of the abdomen can in part enter the envelop and be absorbed by the pad.

This rubber envelop pad possesses every advantage over all forms of gauze. Any woven material like gauze, coming in contact with the peritoneum, must injure it more or less; but the rubber envelop pad may remain in contact, and under considerable pressure, for an indefinite time without occasioning an appreciable injury to the peritoneum.

When gauze pads are used in intra-abdominal work, particularly in a prolonged operation, it is not an uncommon experience to find them adherent to the peritoneal surfaces of the intestine and field of operation. The rubber envelop pad, even under the most trying conditions, with respect to length of time and severity of operation, does not adhere to the peritoneum, and leaves the peritoneal surfaces showing the same color and gloss they possessed before operation. Two of these larger pads, or at the most three, are sufficient to keep the intestines away from the field of work. If the operation is of the character that demands absorptive material, that is, one in which pus escapes or a considerable amount of blood is lost, gauze pads to any number required can be placed in front of the rubber envelop pads and used as sponges without injury to the peritoneum.

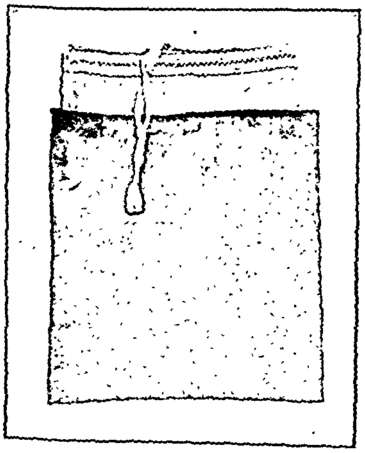


Fig. 3.—The pad entering the envelop.

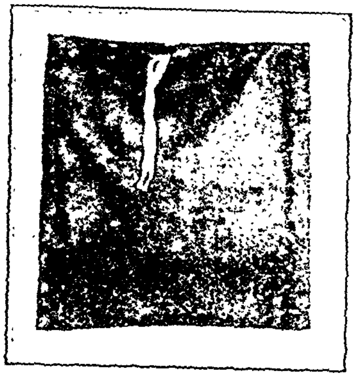


Fig. 4.—The envelop completely covering the pad and its free borders partly closed by the passing of the tape through the openings.

Before the rubber pad is handed to the surgeon during the operation, it should be dipped in warm sterile water, then folded on itself, and grasped at its distal border with a ring probang or sponge forceps.

In pelvic work, if Trendelenburg's posture is used, the intestines are removed from the pelvic cavity and the rubber envelop pads are placed first in the cecal region, then in the sigmoidal region, and a third, if necessary, is placed deep in the pelvis, its upper border meeting at the middle the other two pads previously inserted. If Trendelenburg's posture is not used, the pads are so placed as to surround the immediate field of operation.

No instrument that has rough or cutting surfaces should be used on the envelop. The pads should be removed from the abdominal cavity by means of the tapes and never with the forceps. The longevity of the envelops depends on the way they are handled. For sterilization they require only ordinary boiling in water five or six minutes, and during the interval between operations they can be sterilized again, and used in successive cases, provided a sufficient number of sterilized towel pads have been prepared to meet the demand.

The narrow envelop pads are particularly adapted to operations in which small incisions are used, such as for the removal of the appendix, gallbladder operations, and operations in which the peritoneal cavity is entered through the vagina. The pad used within the narrow envelop should consist of two thicknesses of towel. To facilitate the placing of the pad, a small opening is made in the closed distal border through which forceps are passed to adjust the pad.

In the smaller envelop a long strip of gauze 4 inches wide may be inserted in place of the towel pad if desired, to which is attached a 10 inch loop of tape. In this way a rubber bolster is formed, which would act practically the same as does the larger rubber envelop with towel pad, if folded once or rolled on itself.

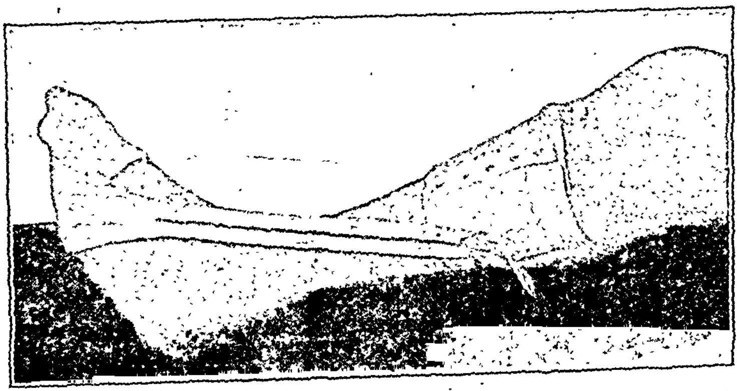
Six envelop and twelve or more towel pads are sufficient for active work in any operating room.

219 West Seventy-Ninth Street.

AN APPARATUS FOR HOLDING THE FOOT IN FLEXION AND INVERSION

John A. Vietor, M.D., New York

A certain number of cases are presented to the surgeon in which there is stiffness or limitation of motion about the ankle joint that will show a tendency to improve under ordinary routine treatment, but in which, nevertheless, it would be an advantage to have constant traction in the position of dorsal flexion and inversion. For this purpose I have devised and used with good advantage an apparatus that will keep the foot in the position desired day and night if necessary.



One cuff apparatus in position in a case of infected compound Pott's fracture.

The apparatus consists of two main parts: 1. A canvas cuff with a lacing up the front that fits firmly over the patient's calf. To this cuff two buckles are attached obliquely, one on each side. 2. A stirrup made of moleskin elliptically shaped that fits under the ball of the patient's foot. To the ends of this stirrup are attached two elastic bands one-half inch wide and about 18 inches long made of good strong material. To keep the stirrup firmly on the foot and prevent lateral sliding, an elastic strap and buckle is sewn to the inner side of the stirrup, which buckles over the dorsum of the foot.

By simply buckling the elastic straps in the buckles of the cuff, one may apply and maintain the proper degree of traction. In order to hold the foot in inversion, a greater degree of traction is exerted on the internal strap. In one case in which there was a considerable amount of atrophy of the calf muscles, the cuff would tend to slide down the leg. Here I found that by adding an additional cuff fitting above the knee and attached to the calf cuff by lateral adjustable straps, this sliding would be overcome and the degree of traction would not be altered on flexion and extension of the knee.

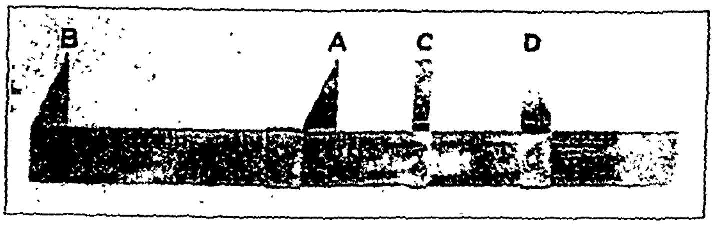
The practical advantages of this apparatus besides the above mentioned ones are the low cost of the apparatus, the ease of its application and the simple adjustment by the patient himself.

161 East Seventy-Ninth Street.

AN IMPROVED CALIPER METHOD FOR ROENTGEN-RAY LOCALIZATION OF FOREIGN BODIES

H. C. Kariher, M.D., Champaign, Ill., and R. D. Brown, M.D., Mobile, Ala.
First Lieutenant and Captain, Respectively, M. R. C., U. S. Army

The caliper method requires much calculation, and is subject to error. We have devised a slide rule that enables one to read the depth without calculation.



Slide rule for measuring the depth of foreign bodies.

Metal pins are placed, like the rungs of a ladder, 1 cm. apart, and the ladder is placed perpendicularly between the table and the screen with the tube beneath the table, and the target 60 cm. from the screen. The tube is so placed under the ladder that the shadows of the pins are as but one in the central day; the screen is replaced by a plate, and a brief exposure is made with the diaphragm closed to admit only the central ray, to obtain 0. The tube is then shifted 12 cm. and a roentgenogram made on the same plate. This scale is transferred to the instrument illustrated, and thus the one minute depth measure is secured.

The point 12 cm. to the left, marked *B*, indicates the distance of tube shift. This replaces all tube locks on the table. The second slide registers the foreign body and skin marker at once. These improvements enable the operator to make all measurements at one lighting of the tube.

This instrument is used in the following manner: The foreign body is located by use of the screen; the tube and the screen are shifted so as to bring the foreign body into the central ray; a skin marker is placed in the central ray over the foreign body. Point *A* is placed in the central ray over the foreign body and the skin marker, the tube is shifted until point *B* appears in the central ray, and we know the tube has been shifted 12 cm.; now the diaphragm is opened, *C* is placed over the shadow of the skin marker, and point *D* over the shadow of the foreign body; the reading at *C*, which represents the distance from the skin marker to the screen subtracted from the reading at *D* gives the exact depth of the foreign body in centimeters. This instrument can be used equally well on plates, provided the distance is 60 cm. and the shift 12 cm.

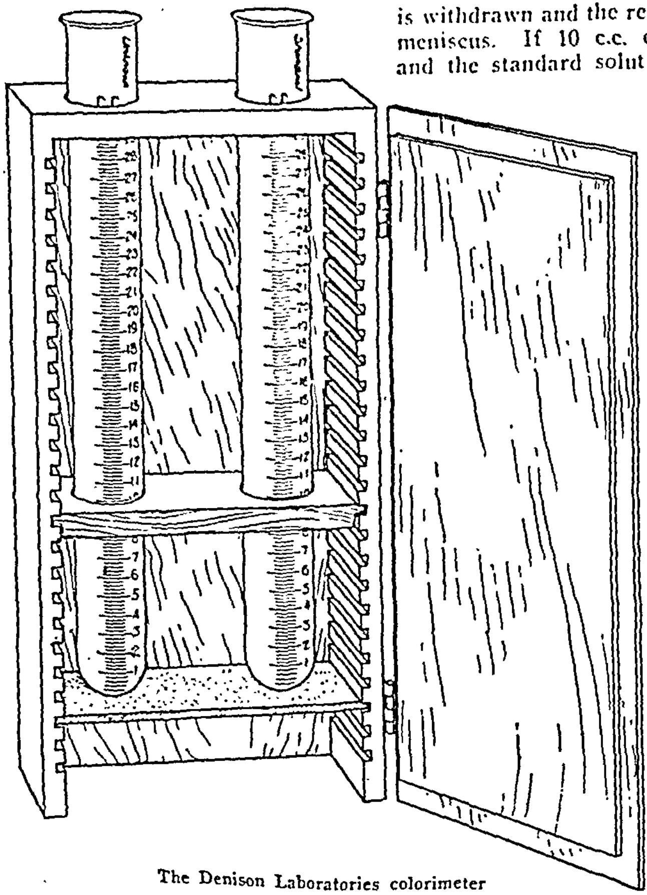
The principal advantages of this instrument over other instruments used in the triangulation method of localization are: No plate is needed; no calculation except the simple subtraction is required; there is no locking of the tube, as the shift indicator point indicates the exact shift of the tube, and all measurements are taken at one lighting of the tube.

A SIMPLE AND ACCURATE COLORIMETER FOR CLINICAL USE *

Alvin R. Peebles, M.D., and Robert C. Lewis, Ph.D., Boulder, Colo.

Professor of Preventive and Experimental Medicine, and Professor of Physiology and Biochemistry, Respectively, University of Colorado School of Medicine

The colorimeter here described, which we have chosen to call the "Denison Laboratories colorimeter," has been in constant use in the Henry S. Denison Research Laboratories and in the Laboratory of Biochemistry of the University of Colorado for a period of more than a year. It was designed in an attempt to devise for the use of the clinician a simple instrument which does not lose, because of its simplicity, any great degree of accuracy. As the number of students who have used the colorimeter is now quite large, it seems best, in order to establish the identity of the instrument, to describe it without delay and without relation to other papers on methods and technic which are now in preparation.


The Denison Laboratories colorimeter

The materials out of which the colorimeter is constructed consist of an ordinary Pillsbury slide box designed to hold twenty-five microscope slides, two test tubes graduated to 30 c.c. in fifths, and a small piece of ground glass. One end is entirely removed from the box, and in the other end are drilled two holes large enough to admit the two test tubes. Best results are obtained when the adjacent edges of the two holes are about three-fourths inch apart. A small wooden piece with two holes corresponding to those in the top of the box is made to fit into the grooves designed for slides, and is placed a little below the middle of the box, as in the illustration. This serves to hold the tubes in place in a vertical position. The inside of the box and lid are blackened with a dead finish paint, and the lid is hinged to the box. The ground glass should have a fine-grained, smooth surface,[1] and should be so cut that it will fit into the slots provided for the microscope slides, and at the same time completely fill the aperture between the top and the bottom of the box when the lid is closed. The glass, when in its place near the end of the box from which the wooden end piece has been removed, serves as a base on which the test tubes rest and also acts as an illuminating and diffusing screen. Ordinary stock test tubes graduated to 30 c.c. in fifths are used; these must be selected and paired so that the 30 c.c. graduation mark on the two tubes will come within 1 or 2 mm. of one another when the tubes are made to stand upright on a level surface. One tube should be marked "Standard"; the other "Unknown." Wax pencil marking will do, but acid etching is preferable. A small mirror or a bit of bright tin, or, in good light, a piece of white blotting paper will serve to reflect the daylight up through the tubes. In using the instrument, one looks vertically downward through two tubes equally and evenly illuminated from below.

TECHNIC FOR USING THE COLORIMETER

The tube marked "Unknown" is filled with the solution to be tested until the bottom of the meniscus comes exactly to the 10 c.c. mark, and into the tube marked "Standard" some of the standard solution of known strength is poured. Both tubes are put into the colorimeter box and the colors compared while the instrument is held some distance from the reflecting surface and about 2 feet from the eye. If the colors do not match, and there is hardly a chance that they will, the standard solution is to be added to or withdrawn from the standard tube until a match is obtained. Additions to or withdrawals from the tube may be made with a Wright or opsonic pipet, that is, a medicine dropper drawn out to a capillary tube. When the colors in the two tubes seem to match perfectly, the eye is rested a moment, and they are compared again after the box has been turned round so that the tube which was formerly on the right will be on the left. If the colors still match perfectly, the standard tube is withdrawn and the reading taken at the bottom of the meniscus. If 10 c.c. of unknown solution are used and the standard solution is brought to a match, the strength of the unknown solution, expressed in terms of percentage of strength of the standard solution, may be obtained by multiplying the reading of the standard tube by 10. For example, if the reading of the standard is 8.4, the strength of the unknown solution is 84 per cent. of the strength of the standard; or, if the reading is 11.4, then the unknown is 114 per cent. as strong as the standard solution. Greatest accuracy is obtained by alternately working from dark to light and from light to dark. In other words, one begins with too much standard and withdraws the solution to a match for a first reading; then for the next reading one begins light and adds standard solution to a match. The average of three or four successively consistent readings should be taken as the figure on which to base calculations.

RESULTS

When three or four readings are taken in the manner described by one with ordinary color sense, it is most unusual for the average to show an error as great as 2 per cent. That this statement is conservative may be seen from the results of the following test: A picramic acid solution prepared as a standard for the blood sugar method of one of us with Benedict[2] was diluted so that 10 c.c. were equivalent to 0.1 mg. of glucose. Some of this solution was placed in the unknown tube, and students, who had no idea of the amount of solution in this tube, were asked to add the same solution to the standard tube until a match was obtained. The results of this test are shown in the accompanying table. Students B and F had had no previous colorimetric experience beyond that of the determination of ammonia in water by the use of nesslerization tubes; Student M had used the colorimeter at intervals for a period of three months, but had had no previous colorimetric experience.

About the only source of error that has come to our attention is the illumination. The ground glass must be clean and

---

* From the Henry S. Denison Research Laboratories of the University of Colorado.

[1] Ground glass may be prepared very easily by rubbing together two plates of glass with carborundum (or emery) powder and a little oil between them. In the colorimeter described, glass ground on both sides has been used.

[2] Lewis, R. C., and Benedict, S. R.: Jour. Biol. Chem., 1915, **20**, 61.

dry, and the colorimeter must be held far enough from the reflecting surface to insure even illumination. Naturally, the test tubes must be clean, but there is far less trouble from dirty glass in this instrument than in other colorimeters.

The instrument offers certain advantages over other colorimeters. To mention only a few of these, it costs only about a dollar to make; it is possible to read accurately much paler colors than with the Duboscq or Hellige colorimeters; and, as no cement is used in its construction, strongly acid or alkaline solutions can do the instrument no harm. Another point of interest worthy of note is the fact that with this instrument subjective error is reduced to a minimum, because the scale to be read is hidden completely during the matching of the colors.

ACCURACY OF THE COLORIMETER

Student	Amount of Solution in "Unknown" Tube, C.c.	Readings of "Standard," C.c.	Average Reading of "Standard," C.c.	Error of Average Reading, Per Cent.
B	13.6	13.5, 13.8, 14.0, 13.8	13.775	+1.29
F	13.6	14.0, 13.8, 13.4, 13.5	13.675	+0.55
F	9.2	9.3, 9.3, 8.6, 9.3	9.125	—0.82
M	10.0	9.9, 10.0, 10.0, 10.0	9.975	—0.25
M	15.0	15.0, 15.2, 15.2, ...	15.133	+0.89
M	20.0	19.8, 19.9, 20.1, ...	19.933	—0.33

We have used the instrument repeatedly and with perfect satisfaction for the determination of phenolsulphonephthalein, ammonia, urea, creatinin, and total nitrogen in urine; urea, nonprotein nitrogen, uric acid, creatinin and creatin, and sugar in blood; and protein and lactose in milk.

DEATH FROM PRESSURE ON LARYNX BY EXTREME ANTERIOR CURVATURE OF CERVICAL SPINE

Alfred H. Noehren, M.D., Buffalo
Fellow of the American College of Surgeons

Miss U., aged 66, was admitted to the Lutheran Church Home as an inmate about twenty years ago. Since that time, she had been in fairly good health, except that she had experienced constant difficulty in swallowing. Thus she had been unable to eat her oatmeal without picking out any lumps that might be in it. She had also been markedly hunchbacked ever since she had been in the institution. The cause of this deformity could not be ascertained.

I saw her for the first time, the morning of Jan. 5, 1918. During the two previous days, her difficulty in swallowing had markedly increased, and for twelve hours she had been unable to swallow anything.

Only a very superficial examination was possible, as the patient was in great distress and could not breathe except when curled up on her left side. The most obvious symptom was her extreme dyspnea, not a rapid breathing as in pneumonia, but a labored and rather slow breathing, as though there were some obstruction in the respiratory tract. Examination of heart and lungs showed them to be normal, but very little air was entering the lungs. On looking into her mouth, I saw a bulging on the posterior pharyngeal wall, which felt hard to the palpating finger.

Further examination was made impossible by her condition but a diagnosis of pressure on some part of the respiratory tract was made. Death occurred about six hours later.

Postmortem examination, made by Dr. Mueller, pathologist of the Deaconess Hospital, revealed the cause of the dyspnea and dysphagia. The marked kyphosis in the dorsal region caused a compensatory lordosis in the lumbar and cervical regions, the most anterior portion of the latter consisting of the third and fourth cervical vertebrae. This anterior curvature came forward directly above the larynx and the opening of the esophagus, and pressed the epiglottis down on both of them, thus practically shutting them off. It occupied so much of the usual pharyngeal space that when the finger was introduced into the mouth, it felt like a large osteoma filling the mouth and pharynx. A thorough examination of the interior of the chest revealed nothing abnormal except a reddening of the mucous membrane of the trachea, with a moderate amount of semipurulent exudate.

The sequence of events which led to the patient's death was probably somewhat as follows: With the settling of the vertebrae, which occurs in old age, the abnormal curves in the spine were exaggerated, until the cervical convexity came forward to such an extent that it almost shut off the glottis and the esophagus, causing an edema of the larynx that quickly caused her death.

If an exact diagnosis had been possible before death, a tracheotomy might have been indicated, but probably would not have saved the patient's life on account of her age and poor condition when first seen.

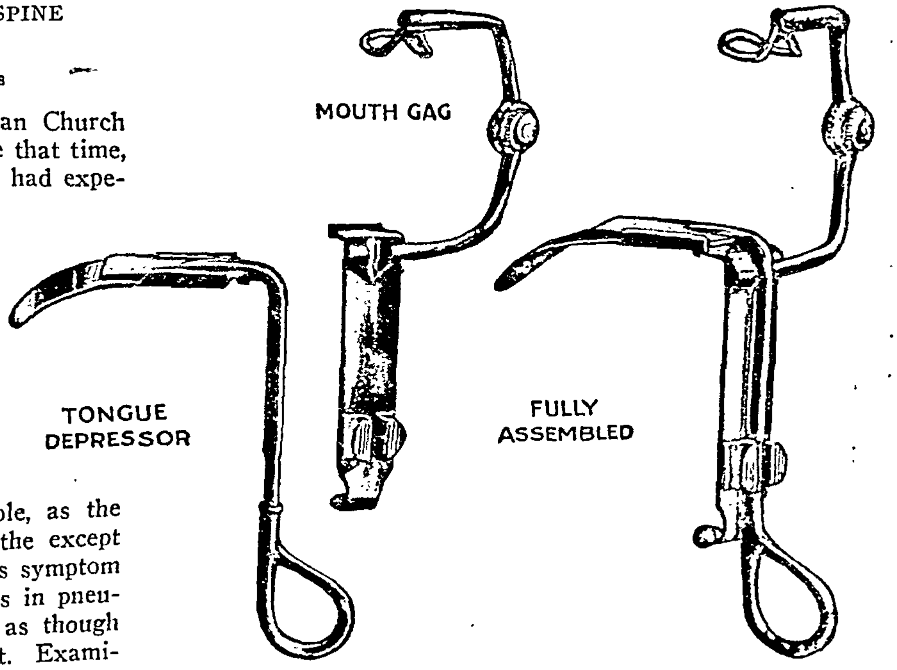
1196 Main Street.

IMPROVED MOUTH-GAG AND TONGUE-DEPRESSOR

J. J. Moyer, M.D., Oakland, Calif.

This invention relates to improvements in mouth specula and more particularly to an improved tongue-depressor. Its object is to provide a tongue-depressor which is instantaneously removable from the mouth-gag. This tongue-depressor may be adjusted for depth to suit the mouth, and has an oscillatory mounting, leaving the operator free to move the tongue-depressor from side to side without affecting the adjustment of the gag or removing the depressor from its holding means.

The particular advantage of the device is the ease with which the tongue-depressor is manipulated, in and out or from side to side in an instant.



Mouth-gag and tongue-depressor.

The ratchet on the gag affords adjustment of the mouth to any desired opening. By the pressing of a button on the side, the ratchet is released.

In the hands of my associates and myself, this instrument gives great satisfaction.

Fourteenth and Jefferson Streets.

First American Book on Military Medicine.—John Jones (1729-1791), who had been a surgeon of French troops in the war of 1758 and afterwards rendered worthy service in the Revolution, published a treatise on wounds and fractures in 1775, which was the first surgical work published in this country, and, through its appendix on camp and military hospitals, the first American book on military medicine.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, the *Scientific Monthly.*

Military Medicine and Surgery

TETANUS

KENNETH TAYLOR, M.A., M.D. (ST. PAUL)
Director, Robert Walton Goelet Research Fund, the American Red Cross Hospital of Paris
PARIS, FRANCE

Among the anaerobic infections, the two that deserve special consideration are tetanus and gas gangrene. Fortunately, modern prophylaxis with antitoxic serum has controlled the former to a very large extent; the latter still continues to be the scourge of the armies.

Most shell and shrapnel wounds are probably infected by both the tetanus and the gas bacillus. The same type of wound is favorable to the development of the two—a deep wound of the muscles showing considerable trauma,[1] the presence of débris, foreign bodies and clothing, and especially comminuted fractures. Tetanus infection is not, however, limited to wounds of this type. Instances of acute tetanus have been reported following frostbite, and these cases should receive the same prophylactic treatment as wounds.

ACUTE TETANUS

At present this is a comparatively rare disease in the base hospital. Its incidence averages, perhaps, two or three cases in a thousand. This is due largely to the general systematic use of antitoxin at the receiving or field hospitals, where every wounded man receives at once a prophylactic injection. The amount given is usually from 750 to 1,500 units in the French army and 500 units (U. S. A.) in the British forces. It is recommended that in severe cases, especially in fractures, a second injection of 1,500 units within six days should always be given.[2] It should be remembered that the immunity afforded by one inoculation generally lasts for only about ten days. Thus, if the bacilli persist for a longer period than that in the wound, acute tetanus may subsequently develop in spite of the primary inoculation. These cases are not rare. They are seen especially among some of the amputations which have been performed at the front and in which devitalized tissue was enclosed within the amputation flaps.

Perhaps the early débridement of the wound is as important a prophylactic measure against tetanus as is the administration of serum. Such treatment is as effective in preventing the growth of the tetanus bacilli as it is the growth of the gas-forming anaerobes. It must never be considered, however, as a substitute for prophylactic serum treatment.

Acute tetanus also occurs after secondary operations, especially those that entail considerable trauma of the soft tissues. These cases have been frequent enough for general orders to have been issued by the French medical service advising the routine administration of a prophylactic dose of 1,500 units of serum before every secondary operation.

Anaphylactic reactions from secondary inoculations of tetanus serum are of very rare occurrence, and the danger can probably be entirely obviated by the employment of the desensitizing dose. This consists in subcutaneous injection of from 0.5 to 1 c.c. of the serum, followed, after three or four hours, by the remainder.

"Serum sickness" may occur, in spite of this precaution, at any time between three and eight days after injection. It is characterized by edema, local or general urticaria, joint pains, and occasionally fever, vomiting and general malaise. The duration is usually from one to five days. The prognosis is good.

The diagnosis of acute tetanus requires no discussion. The picture is too characteristic to be mistaken for any other condition. The search for tetanus bacilli in the wound is usually an unprofitable procedure, and even if they can be identified (which is unusual), their presence is of little significance.

The treatment of acute tetanus is highly unsatisfactory and the prognosis bad. Large injections of serum, from 10,000 to 20,000 units daily, given subcutaneously, intramuscularly,[3] intravenously, or especially intrathecally,[4] or all three simultaneously, are usually instituted, but seldom appear to have much effect once the symptoms are established. The same may be said of injections of phenol (carbolic acid), from 1 to 20 grains injected daily. Injections of magnesium sulphate also have proved ineffectual.[5] Immediate débridement of the wound, or amputation practiced at the onset, may result in an occasional recovery if too much of the toxin has not already been fixed in the nerve cells. A dark room, rest, sleep and food are always valuable. Morphin should be administered, but has slight effect on the contractions.

About 80 per cent. of the cases with an onset within ten days of injury terminate fatally. A rapid onset and severe tetanic spasms at frequent intervals usually mean death. The longer the incubation period the better the prognosis.

CHRONIC TETANUS

Various chronic and more or less local forms of tetanus are not uncommon.[6] Local tetanus developing in the limbs or other isolated groups of muscles is ascribed to an insufficient amount of serum in the prophylactic inoculation or to the gradual lowering of the state of passive immunity. Cases are reported as occurring more than three months after the last operative procedure and more than a year after injury, and in cases with wounds completely healed.[7] Pure local tetanus is a rare occurrence. The disease tends to become general, though irregular in distribution. Among the most common conditions from which a chronic tetanus may develop are the infected fractures with a long continued, low grade, bone infection.

The diagnosis of chronic tetanus is not easy. It is usually gradual in onset and tends to become chronic. Trismus is frequently absent. The muscles about the wound may show first clonic spasms or a tonic contracture. Reflexes, deep and superficial, may be increased. It must be carefully distinguished from hysteria, and if symptoms are local, pressure on some nerve trunk by a scar or a bone displacement must be excluded. Rheumatism, diseases of the brain and meninges, and low grade bacteremias are sometimes confused with chronic tetanus. A high pulse rate with little or no fever is fairly characteristic. Pain in the muscles of the back or neck, general restlessness, profuse sweating, sore throat with difficulty in swallowing, and congestion of the sublingual veins may add to the certainty of diagnosis.

---

[1] Taylor, Kenneth: Am. Surg., 1916, **64**, 641.

[2] Official recommendation, Service de santé, France.

[3] Leishman, W. B., and Smallman, A. B.: Lancet, London, 1917, **1**, 131.

[4] Andrewes, F. W., and Horder, T. J.: Lancet, London: 1917, **1**, 682. Golla, F.: Ibid., 1917, **1**, 686.

[5] Bruce, D.: Lancet, London, 1916, **2**, 929.

[6] Courtois-Suffit and Giroux, R.: Les formes anormales du tetanos, Paris, Masson & Cie, 1916.

[7] Dean, H. R.: Lancet, London, 1917, **1**, 673. Bruce, D.: Ibid., 1917, **1**, 986.

The treatment of chronic tetanus is largely surgical. The wound should be explored, the dead tissue resected, bone fragments curetted, and sequestrums removed. Occasionally, if the symptoms become more severe, amputation may be necessary, especially if the local conditions make preservation of a useful limb doubtful. This is probably rarely necessary, and chronic tetanus alone should seldom be accepted as an indication for amputation. In addition to the operative treatment, sedatives may be administered and antitoxic serum injections instituted. Quiet and a sustaining diet are as important as in the acute cases.

The prognosis of chronic tetanus is usually good. Nearly all patients who live for two weeks or more after the appearance of the first symptoms recover. Bruce reports a mortality of 17 per cent. in cases occurring after operation when no prophylactic dose of antitoxin was administered. In the local forms, the greater the time since the last injection of antitoxin the worse the prognosis. The gradual involvement of the higher centers is, of course, a bad sign.[8]

THE SERVICE IN GENITO-URINARY DISEASES AT CAMP DIX

WILLIAM WARREN TOWNSEND, M.D.
Major, M. R. C., U. S. Army
CAMP DIX, WRIGHTSTOWN, N. J.

The work of the urologic and dermatologic departments in the base hospital at Camp Dix has been one of organization as well as therapeutics.

Starting September 13 in one two-story building, our progress has been rapid. In October we moved to the base hospital, and at present have, exclusively for genito-urinary and dermatologic patients, six wards, one of which is used for outpatients only.

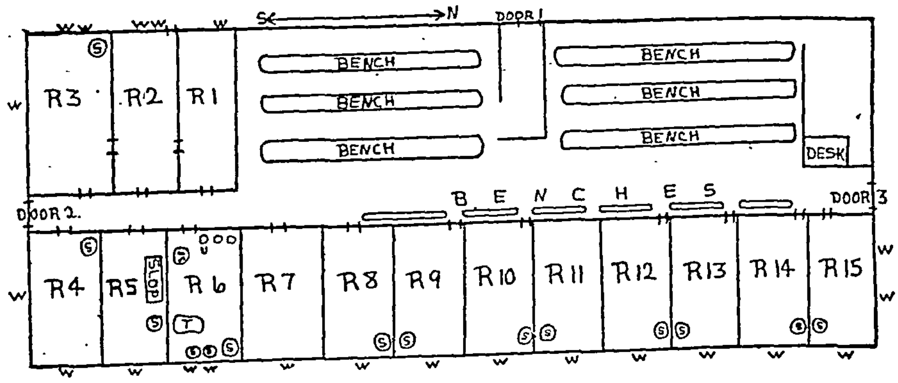


Fig. 1.—Dispensary floor plan.

Our medical staff consists of fourteen officers. A major is the chief of both the genito-urinary and dermatologic departments. The genito-urinary staff consists of ten lieutenants. The dermatologic staff consists of one captain and two lieutenants. Each member of the staff does work in the dispensary in addition to ward work. The junior members of the staff receive instruction from the chief of the department in the diagnosis and treatment of urologic and venereal diseases.

Each ward has a ward surgeon and an assistant ward surgeon. The ward surgeon is responsible to the chief for everything that transpires in his ward. In the absence of the ward surgeon, his assistant automatically becomes ward surgeon and assumes the duties and responsibilities of the ward surgeon.

In addition to ward duty, each officer has a position in the outpatient department. Here, as far as duties are concerned, our system is one of rotation. In order that a man may become familiar with every phase of our outpatient work, he is assigned to the various stations for a week at a time. As yet we have not made the position of director of treatment one to which every man is assigned. For obvious reasons it is considered most practicable to keep this for about three experienced men.

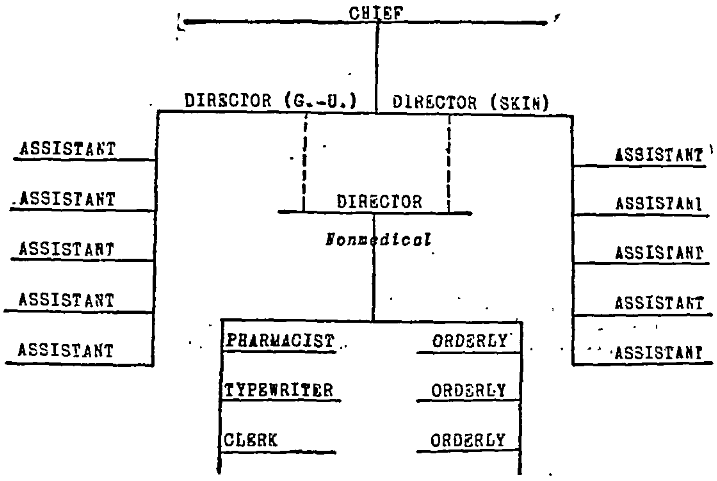


Fig. 2.—Hospital and outpatient organization.

RANGE OF WORK

In October, 1917, with the cooperation of the Surgeon-General's Office and the commanding general and the division surgeon of the Seventy-Eighth Division, we took over the treatment of all genito-urinary and dermatologic cases in Camp Dix. In this movement we have received the cooperation of regimental surgeons and regimental commanders. Prophylactic treatment has, however, been administered at the regimental infirmaries. In assuming control of all genito-urinary and syphilis work, our organization plans had to be greatly altered to accommodate the extra amount of work put on them. At present we can easily handle 300 dispensary patients in a day in addition to treating all of our hospital patients. As a result of the splendid cooperation of regimental commanders and surgeons, we have not been burdened with follow-up letters.

Our plan of distribution and assignment of patients, either to our hospital wards or to the outpatient department, is as follows:

Every new patient sent to this department for advice is thoroughly examined and a *complete* history taken at his first appearance. If he is deemed a case for hospital care, Form 1 is filled out and sent to the regimental surgeon. In this form it will be noted that the patient must be sent with his mess kit. In our entire department we have no dishes except those that the patients bring with them. He is further instructed to bring any toilet articles he may need, because he cannot again leave the hospital buildings until discharged. In the event of his being a dispensary case, Form 2 is sent to his regimental surgeon.

---

8. Montais: Ann. de l'Inst. Pasteur, July, 1916.

If, on discharge from the wards of the department, the patient is to receive further treatment as an outpatient, Form 3 is filled out. If discharged, a personal note is sent the regimental surgeon in addition to Form 4.

DISPENSARY TREATMENTS

Our plan of procedure in handling cases in the dispensary is as follows:

The patient enters Door 1 (Fig. 1) and his name is taken by a clerk. He then takes his place on a bench as near as possible to Room 1. (We endeavor to seat the men and treat them in the order in which they arrive.) The records are then sorted out by the record clerk and given to an orderly, who calls out the patient's name and sees that he gets into Room 2 to the director of treatment. After receiving treatment, the patient takes his record and the treatment slip, which has been signed by the officer administering the treatment, and deposits them in a basket at Door 3. At 3 we have a clerk stationed whose duty it is to see that no patient leaves the building without his record or without having had treatment.

FORM 1

Urological Department Base Hospital Camp Dix, N. J.

PLEASE RETURN THIS SLIP WITH PATIENT

January, 1918.

From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise: Admission to this hospital for treatment.
Patient should have mess kit and either transfer card or nominal list, as applies to this case. Your signature to either necessary.

....
First Lieut., M. R. C.

FORM 2

Urological Department Base Hospital Camp Dix, N. J.

PLEASE RETURN THIS SLIP WITH PATIENT

January, 1918.

From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise: That he return to this dispensary ....
and .... each week for treatment at 8 a. m.

....
First Lieut., M. R. C.

FORM 3

Urological Department Base Hospital Camp Dix, N. J.

PLEASE RETURN THIS SLIP WITH PATIENT

January, 1918.

From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject:
Diagnosis:
Advise:

....
First Lieut., M. R. C.

FORM 4

Urological Department Base Hospital Camp Dix, N. J.

January, 1918.

From: G.-U. Dispensary.
To: Regimental Surgeon.
Subject: Discharge of
Diagnosis:
Remarks: The above named patient is discharged from treatment in this department.

....
First Lieut., M. R. C.

The direction of treatment of hospital patients is carried out in our dispensary building, and each ward surgeon directs the treatment of his own patients. The routine work is carried out, however, by other members of the staff. We wish to emphasize the fact that *all* treatments are administered by members of the medical staff and not by orderlies.

In our work we have impressed the fact on members of the staff that there can be just as much decorum and professional dignity connected with a urologic and dermatologic hospital as in any other branch of medicine. This seriousness of purpose, we believe, automatically impresses the venereal patient with the gravity of his disease.

In the wards, bedside talks on sexual hygiene are given by the staff. While attendance is not compulsory, we find that general interest is manifested by the patients.

OUTPATIENT DEPARTMENT

For this work we have a well equipped converted ward building which has fifteen small rooms for treatment and one large room for a waiting room (Fig. 1).

Room 1 is used as a record room. All records of outpatients and discharged patients are kept in files. The records are kept in order by a record clerk whose duty it is to keep the records and to enter on the treatment sheet the treatment each patient receives. It is also the duty of this clerk to check up the names of such outpatients as fail to appear for treatment. The regimental surgeon is then informed of any men in his command who have failed to appear.

Room 2 is the station of the director of treatment. Each patient receives his record on entering this room. The director examines the patient, that is, takes a smear weekly, examines the urines clinically by the glass test, makes note of anything the patient may complain of, and with his treatment slip assigns him to one of the several rooms where treatment is given.

Room 3 is used exclusively for endoscopic, cystoscopic and urethral examinations, and passage of sounds under the direction of the chief of the service.

Room 4 is the laboratory in charge of a lieutenant trained in laboratory work He examines smears for gonococci, and the urines of both ward and outpatients. He also examines specimens for *Spirochaetae pallidae*.

Room 5 is the patients' toilet.

Room 6 is a lavatory for officers and the hospital personnel.

Room 7 is the pharmacy in charge of a trained man. Here all solutions and drugs used in this department are in stock, and drugs necessary for treatment are dispensed.

Rooms 8 to 15 are treatment rooms for genitourinary patients.

Room 15 is used as a dermatologic and syphilitic treatment room.

Health of New York in 1917.—The health department has recently published a résumé of its statistics for the year 1917, which shows that the death rate last year was 13.78, the lowest ever recorded in the city. The death rate for 1916 was 13.89 and for 1910, 16.00. The respiratory diseases as a class are still responsible for a large number of deaths annually; the death rate from pneumonia was 1.93, the same as in 1913. The death rate from tuberculosis shows an increase over that prevailing in 1916, the rate being 1.55, as against 1.50 for 1916. While the prevalence of the common infectious diseases is known to fluctuate from year to year, there has been a gradual reduction as compared with ten or twenty years ago. Heart disease, Bright's disease and cancer fail to show any decrease. Last year there were 529 deaths from sunstroke, the largest number in New York City since 1901. There has been a marked increase in violent deaths the past few years. In 1917, the rate of deaths from automobile accidents was 9.07 per hundred thousand, as against 5.64 in 1913. In 1917, there were 768 deaths from suicide as compared with 836 in 1916. The marriage rate was 10.49 in 1917, as against 9.78 in 1916 and 9.68 in 1910.

CULTIVATION OF THE MENINGOCOCCUS INTRACELLULARIS (WEICHSELBAUM) FROM THE BLOOD

PRELIMINARY REPORT *

F. W. BAESLACK, M.D. (DETROIT)
A. H. BUNCE, M.D. (ATLANTA, GA.)
Captains, M. R. C., U. S. Army
G. C. BRUNELLE, M.D.
J. S. FLEMING, M.D. (PHILADELPHIA)
G. F. KLUGH, M.D. (CROSS HILL, S. C.)
E. H. McLEAN, M.D. (OMAHA)
AND
A. V. SALOMON, M.D. (NEW YORK)
First Lieutenants, M. R. C., U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

The recent epidemic of meningitis at this camp afforded excellent opportunities for studying the disease, and brought out certain phases in its onset and course which, heretofore, have not received the attention that their importance warrants. The unusual severity with which the disease manifested itself no doubt accentuated those phases so that they stood out more prominently in its syndrome.

While it is generally accepted that the meningococcus is carried in the secretions of the nasopharynx of patients and contacts, its mode of reaching the sites of the body where its presence gives rise to the pathologic manifestations are as yet to be definitely settled. Whether the meningococcus passes directly to the nervous system by way of the lymphatics between the nasopharynx and the meninges, or indirectly by way of the blood, has not been established.

The nature of the onset and course of the disease in some cases pointed to the probable existence of a systemic infection before the meninges were affected. The course of the disease seemed to divide itself into two periods, the premeningeal and the meningeal. The premeningeal was characterized by chills, severe toxemia and petechiae. The spinal fluid drawn during this interval was frequently clear, free from polymorphonuclear leukocytes, and contained few or no organisms. During this stage Noguchi's butyric acid test for globulins was either very faint or negative. Fehling's solution was reduced.

The progress of the disease in these cases, showing symptoms of a general toxemia previous to or coexistent with those of meningeal involvement, suggested that as in other infectious diseases, as typhoid and pneumonia, we were dealing with a bacteremia which in its later course involves the meninges.

That the meningococcus occasionally gets into the blood is borne out by the occurrence of lesions in various parts of the body from which we have recovered and identified the meningococcus. These lesions have always been regarded as late systemic manifestations of the disease; and the occurrence of the organism in the blood, even though it has frequently been recovered by blood culture, was considered as exceptional. The early appearance of these lesions and the characteristics of the disease mentioned above lead us to believe that it is essentially systemic, and caused us to advise the intravenous administration of serum, which in the hands of the clinicians has shown such promising results. An occasional blood culture taken in the course of the epidemic confirmed us in the belief that the organism, in the early stages of the disease, invades the blood; and as the stress of routine work permitted, further cultures were made.

While the series reported here is small (twenty-five cases), it is very suggestive. When it is considered that the meningococcus, under the most favorable circumstances, is an extremely difficult organism to grow artificially at first from the cerebrospinal fluid, and that a blood organism is highly parasitic, the percentage of positive cultures obtained would point to a much higher incidence than the actual figures would indicate.

As large amounts of a vigorous growth have to be transferred to obtain successful transplants, so a large quantity of blood is necessary for the inoculation of the first culture. In the milder cases the number of micro-organisms even in a large amount of blood is necessarily small; for this reason it is in the relatively severe cases, in which the number of organisms is large, that the positive culture is obtained.

The fact that the organism has been isolated from lesions in which the meningococcus infection has not been suspected points to the probability that even in the milder cases the disease is general, rather than a local infection confined to the meninges.

Up to the present the stress of work has prevented us from taking more than a single culture from each patient, excepting in two cases, one of which was twice positive and the other twice negative. If repeated cultures were taken they would probably show an even higher percentage of positives.

At present a culture is taken as soon as the patient is admitted and the provisional diagnosis made, and before any serum has been given. A member of the laboratory staff is always on call at any hour to get the blood. At the same time sufficient blood is obtained for agglutination tests, the results of which will be reported later.

The occurrence of the meningococcus in other sites of the body has been pointed out. That this metastatic localization may follow the meningeal involvement must be granted; it is equally possible that the occurrence of the organism in other regions than the meninges is due to the systemic invasion occurring in the early stages of the disease.

REPORT OF CASES

Case 1.—Private E. S., aged 26, admitted, Dec. 2, 1917, complained of sore throat of two days' duration. He began feeling chilly on the morning prior to admission. He complained of headache, and pains in his bones and muscles. The provisional diagnosis was acute pharyngitis. December 8, 40 c.c. of slightly cloudy fluid were removed by lumbar puncture. The fluid contained many pus cells and intracellular and extracellular gram-negative diplococci. December 19, the patient developed arthritis of both knees; 45 c.c. of gelatinous purulent fluid were removed from the left knee, and 40 c.c. of a similar fluid from the right knee joint. Bacteriologic examination of these fluids was negative. December 25, a second puncture of the knee joints revealed fluids of a character similar to that removed by the first aspiration. Jan. 6, 1918, the patient developed panophthalmitis of the left eye, which was enucleated. Smears from the interior of the eye revealed numerous gram-negative, intracellular and extracellular diplococci. January 8, the patient was discharged. The bacteriologic examination of the knee fluids gave a gram-negative diplococcus which was identified as a meningococcus of the regular type.[1]

---

* From the pathologic laboratories, base hospital, Camp Jackson, S. C.

[1] Final identification of the meningococcus is made by agglutination with serums supplied by the Rockefeller Institute and the Department of Health of New York City. Types are determined by serums furnished by the Army Medical School.

Case 2.—Private J. M. F., aged 25, admitted, Jan. 5, 1918, was in very poor condition; there were marked tremor, and cyanosis of the lips and finger tips. The provisional diagnosis was bronchitis following measles. January 11, bronchopneumonia developed. The patient died, January 15. Cultures of pus found at necropsy in the sphenoid sinus gave a gram-negative diplococcus which was identified as the meningococcus of the regular type.

Case 3.—Private S. R., aged 23, admitted, Nov. 15, 1917, complained of cold and pain in the chest, and pain in the eyes and the back. The provisional diagnosis was measles. November 24, bronchitis developed on the left side. November 28, there was pleurisy on the left side. Next day a diagnosis of bronchopneumonia was made. Jan. 15, 1918, an intercostal incision for left empyema was made, and a large amount of slightly cloudy serous fluid removed, which was sent to the laboratory for bacteriologic examination. A meningococcus of the regular type was isolated.

TABLE 1.—CASES ON WHICH THIS REPORT IS BASED

Case	Date	Initial Chill	Headache	Vomiting	Rash	Temperature on Admission	Cerebration	Kernig's Sign	Rigidity of Neck	Microscopic Examination of Spinal Fluid	Culture of Spinal Fluid*	Culture of Blood	Culture of Nasopharynx	Treatment Before Admission	Outcome of Case	No. of Times Spinal Fluid Was Cultivated
1. R. S. B.	12/14/17	+	+	0	++	?	Cloudy	?	?	+	0	+	—	0	L	1
2. W. B. W.	12/14/17	0	0	0	+	100.8	Unconscious	0	0	+	0	0	—	0	D	1
3. J. D. D.	1/ 7/18	0	++	0	0	101.4	Dull	+	+	+	0	+	—	0	D	1
4. P. B.	1/13/18	+	++	++	++	104.2	Stupor	+	+	+	+	+	—	0	D	1
5. J. P. C.	1/14/18	0	+	0	+	100.0	Clear	+	+	+	+	+	—	0	D	2
6. C. W. L.	1/15/18	0	+	+	0	104.0	Stupor	++	+	+	0	0	—	—	L	12
7. O. J. B.	1/16/18	0	+	++	+	103.0	Normal	++	+	+	+	+	+	0	D	2
8. A.P.	1/17/18	0	+	0	0	103.0	Unconscious	+	++	+	+	0	0	0	L	1
9. B. L. B.	1/20/18	+	++	++	0	101.4	Normal	sl	sl	+	0	0	0	0	L	4
10. H. A.	1/21/18	+	+	+	0	100.2	Clear	sl	sl	+	0	0	0	0	L	5
11. M. L.	1/21/18	0	+	+	0	98.0	Conscious	++	+	+	+	+	0	0	L	2
12. R. L. T.	1/21/18	+	+	+	+	105.0	Conscious	+	+	+	+	+	+	0	D	2
13. A. S.	1/22/18	0	+	+	0	103.0	Unconscious	+	+	+	+	0	0	+	L	4
14. H. C. L.	1/22/18	†	+	0	0	99.0	Conscious	sl	sl	+	0	0	0	0	L	4
15. W. F. M.	1/23/18	+	++	0	++	105.0	Clear	+	+	+	+	+	0	0	L	3
16. J. W. W.	1/23/18	+	+	+	+	103.0	Delirious	+	+	+	+	+	0	0	L	1
17. D. W.	1/23/18	0	+	0	0	101.0	Prostrate	+	sl	+	+	0	0	0	L	2
18. Lt. D.	1/24/18	0	+	+	?	98.6	Clear	0	0	+	+	0	0	0	D	2
19. R. F.	1/25/18	+	++	+	0	100.0	Unconscious	+	+	+	0	0	0	+	L	4
20. H. F. J.	1/25/18	0	+	+	0	101.0	Cloudy	+	+	+	0	0	0	0	L	6
21. L. C.	1/26/18	0	+	+	0	99.2	Dull	++	+	+	0	0	0	0	L	4
22. R. B.	1/26/18	+	+	+	+	?	Delirious	++	+	+	0	0	0	0	L	4
23. D. S.	1/28/18	0	0	0	++	102.0	Unconscious	+	+	+	0	+	0	0	L	2
24. L. A. H.	1/28/18	+	+	+	0	102.0	....	sl	+	0	+	0	0	0	L	3
25. J. W. J.	1/28/18	+	+	+	0	100.0	Clear	+	+	+	0	0	0	0	L	4

* Number of spinal fluid cultures positive, 12, or 48 per cent. The comparatively low percentage of positive cultures from the spinal fluids is probably due to the fact that the spinal fluids became chilled during the interval, as very often an hour or more elapsed between the time of puncture and final delivery at the laboratory; while on the other hand, the blood cultures were carefully guarded against chilling.

† Sweats.

COMMENT

While Case 1 permits the conclusion of metastatic involvement during the course of the disease, Cases 2 and 3 indicate that the meningococcus infection may occur as a generalized bacteremia without causing noticeable meningeal symptoms.

The mediums as well as the method of carrying on this work are given in greater detail, because they can be followed under field conditions, and furthermore, on them depend in a large measure the results obtained in this series of cases.

Mediums Employed.—From 80 to 100 c.c. of meat infusion bouillon, salt free, are sterilized in 6-ounce medicine bottles. The advantages in the use of these containers lie in the facts that they are easily obtained, and that the narrow mouth reduces the chances of contamination.

To this bouillon are added 1 per cent. glucose and 10 per cent. serum water. This medium is stored in the incubator to be thoroughly warm at the time of inoculation. Two bottles are inoculated by the placing of from 15 to 20 c.c. of the patient's blood in each. A culture is made at the same time from the patient's nasopharynx on a glucose-blood-agar plate. The plates are examined the following day for suspicious looking colonies and these are transferred to a glucose-blood-agar slant for identification.

The blood cultures are incubated at 37 C. and subcultures are made at twenty-four hour intervals on 1 per cent. glucose-blood-agar plates. Positive cultures are obtained in from forty-eight to ninety-six hours. Negative cultures are kept under observation for an additional five days before being discarded.

Appearance of Positive Bouillon Culture.—Red blood cells lie free on the bottom of the flask unchanged. The supernatant fluid is slightly cloudy and has a faintly greenish opalescence. As the culture ages, the color of the medium deepens.

Method of Making Subcultures.—From the bottom of the flask just above the sedimented blood cells, about 1 c.c. of the culture is withdrawn, poured over each of a series of 1 per cent. glucose-blood-agar plates, and incubated with the cover up. (A 2 per cent. agar plus 0.2 phenolphthalein, to which 1 per cent. of glucose and 15 per cent. of laked human blood is added.)

In from sixteen to twenty-four hours, the liquid has evaporated from the plate, and the growth appears as either a grayish-white gelatinous coat or as discrete colonies. At the time of transfer from the bouillon culture to the plates, a transfer is also made to a slant of the same medium by allowing 0.2 c.c. of the bouillon culture to run over the slant. This frequently gives sufficient growth for agglutinating purposes.

The colonies on an eighteen to twenty-four hour growth, with the employment of the foregoing medium, are from 0.5 to 3 mm. in diameter, and are round, with an even, circular, smooth edge and a smooth surface. By reflected light the colony appears gray and glistening, with a soft, velvety tone. By

CULTIVATION OF THE MENINGOCOCCUS INTRACELLULARIS (WEICHSELBAUM) FROM THE BLOOD

PRELIMINARY REPORT *

F. W. BAESLACK, M.D. (DETROIT)
A. H. BUNCE, M.D. (ATLANTA, GA.)
Captains, M. R. C., U. S. Army
G. C. BRUNELLE, M.D.
J. S. FLEMING, M.D. (PHILADELPHIA)
G. F. KLUGH, M.D. (CROSS HILL, S. C.)
E. H. McLEAN, M.D. (OMAHA)
AND
A. V. SALOMON, M.D. (NEW YORK)
First Lieutenants, M. R. C., U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

The recent epidemic of meningitis at this camp afforded excellent opportunities for studying the disease, and brought out certain phases in its onset and course which, heretofore, have not received the attention that their importance warrants. The unusual severity with which the disease manifested itself no doubt accentuated those phases so that they stood out more prominently in its syndrome.

While it is generally accepted that the meningococcus is carried in the secretions of the nasopharynx of patients and contacts, its mode of reaching the sites of the body where its presence gives rise to the pathologic manifestations are as yet to be definitely settled. Whether the meningococcus passes directly to the nervous system by way of the lymphatics between the nasopharynx and the meninges, or indirectly by way of the blood, has not been established.

The nature of the onset and course of the disease in some cases pointed to the probable existence of a systemic infection before the meninges were affected. The course of the disease seemed to divide itself into two periods, the premeningeal and the meningeal. The premeningeal was characterized by chills, severe toxemia and petechiae. The spinal fluid drawn during this interval was frequently clear, free from polymorphonuclear leukocytes, and contained few or no organisms. During this stage Noguchi's butyric acid test for globulins was either very faint or negative. Fehling's solution was reduced.

The progress of the disease in these cases, showing symptoms of a general toxemia previous to or coexistent with those of meningeal involvement, suggested that as in other infectious diseases, as typhoid and pneumonia, we were dealing with a bacteremia which in its later course involves the meninges.

That the meningococcus occasionally gets into the blood is borne out by the occurrence of lesions in various parts of the body from which we have recovered and identified the meningococcus. These lesions have always been regarded as late systemic manifestations of the disease; and the occurrence of the organism in the blood, even though it has frequently been recovered by blood culture, was considered as exceptional. The early appearance of these lesions and the characteristics of the disease mentioned above lead us to believe that it is essentially systemic, and caused us to advise the intravenous administration of serum, which in the hands of the clinicians has shown such promising results. An occasional blood culture taken in the course of the epidemic confirmed us in the belief that the organism, in the early stages of the disease, invades the blood; and as the stress of routine work permitted, further cultures were made.

While the series reported here is small (twenty-five cases), it is very suggestive. When it is considered that the meningococcus, under the most favorable circumstances, is an extremely difficult organism to grow artificially at first from the cerebrospinal fluid, and that a blood organism is highly parasitic, the percentage of positive cultures obtained would point to a much higher incidence than the actual figures would indicate.

As large amounts of a vigorous growth have to be transferred to obtain successful transplants, so a large quantity of blood is necessary for the inoculation of the first culture. In the milder cases the number of micro-organisms even in a large amount of blood is necessarily small; for this reason it is in the relatively severe cases, in which the number of organisms is large, that the positive culture is obtained.

The fact that the organism has been isolated from lesions in which the meningococcus infection has not been suspected points to the probability that even in the milder cases the disease is general, rather than a local infection confined to the meninges.

Up to the present the stress of work has prevented us from taking more than a single culture from each patient, excepting in two cases, one of which was twice positive and the other twice negative. If repeated cultures were taken they would probably show an even higher percentage of positives.

At present a culture is taken as soon as the patient is admitted and the provisional diagnosis made, and before any serum has been given. A member of the laboratory staff is always on call at any hour to get the blood. At the same time sufficient blood is obtained for agglutination tests, the results of which will be reported later.

The occurrence of the meningococcus in other sites of the body has been pointed out. That this metastatic localization may follow the meningeal involvement must be granted; it is equally possible that the occurrence of the organism in other regions than the meninges is due to the systemic invasion occurring in the early stages of the disease.

REPORT OF CASES

Case 1.—Private E. S., aged 26, admitted, Dec. 2, 1917, complained of sore throat of two days' duration. He began feeling chilly on the morning prior to admission. He complained of headache, and pains in his bones and muscles. The provisional diagnosis was acute pharyngitis. December 8, 40 c.c. of slightly cloudy fluid were removed by lumbar puncture. The fluid contained many pus cells and intracellular and extracellular gram-negative diplococci. December 19, the patient developed arthritis of both knees; 45 c.c. of gelatinous purulent fluid were removed from the left knee, and 40 c.c. of a similar fluid from the right knee joint. Bacteriologic examination of these fluids was negative. December 25, a second puncture of the knee joints revealed fluids of a character similar to that removed by the first aspiration. Jan. 6, 1918, the patient developed panophthalmitis of the left eye, which was enucleated. Smears from the interior of the eye revealed numerous gram-negative, intracellular and extracellular diplococci. January 8, the patient was discharged. The bacteriologic examination of the knee fluids gave a gram-negative diplococcus which was identified as a meningococcus of the regular type.[1]

---

* From the pathologic laboratories, base hospital, Camp Jackson, S. C.

[1] Final identification of the meningococcus is made by agglutination with serums supplied by the Rockefeller Institute and the Department of Health of New York City. Types are determined by serums furnished by the Army Medical School.

STREPTOCOCCAL INFECTIONS FOLLOWING MEASLES AND OTHER DISEASES

ERNEST E. IRONS, M.D. (CHICAGO)
AND
DAVID MARINE, M.D. (CLEVELAND)
Majors, M. R. C., U. S. Army

CAMP CUSTER, BATTLE CREEK, MICH.

We have recently had opportunity to study the incidence and symptoms of streptococcal infections following measles, tonsillitis and other conditions associated with lowered resistance in soldiers, and to make observations on their pathology and symptomatology that are of assistance in diagnosis and in determining treatment.

During the fall and early winter up to the middle of December, 1917, approximately 200 cases of measles and fifty cases of rubella were treated, with complications in only three cases, otitis media in each instance, in one of which a mastoid infection required operation.

With the advent of "colds," acute bronchitis, pharyngitis and tonsillitis in the cantonment in late December and early January, a number of more serious complications appeared in measles patients as well as in soldiers in the hospital for other causes. The first one was a soldier convalescent from measles who was being held in quarters for the prescribed two weeks following his discharge from the hospital. The onset with chill, pain in the side, and fever suggested pneumonia, and pus was discovered by exploratory puncture only after several days of illness. Operation was attempted, but the patient died. Necropsy revealed that the entire process was not in any sense a true lobar pneumonia, but rather a lobular pneumonia followed by streptococcus pleurisy and empyema. Since the first case, all patients presenting pulmonary symptoms have been studied with the special object of detecting empyema early and instituting drainage. Without the frequent and careful use of the exploring needle, a number of these cases would undoubtedly have passed for lobar pneumonia, or "pneumonia following measles." Indeed, we have been led to maintain a specially close watch on cases of supposedly frank lobar pneumonia, especially those showing organisms classed as Type IV, and have repeatedly detected empyema in such cases.

PATHOLOGY AND BACTERIOLOGY

The necropsy findings have been quite constant. Mathers has studied and reported a similar group of cases from civil practice. While the pleura is most frequently involved, other serous membranes, pericardium, endocardium and peritoneum, have also frequently been affected. In general the pathologic findings are those of septicemia with serofibrinopurulent pleurisy, pericarditis, mediastinitis, endocarditis or peritonitis, and in one case coincident arthritis. In early cases the inflammation is fibrinous, and there is much clinical evidence that the accumulation of fluid is a late and very rapidly developing process. In one case, occurring in the second week of measles, a primary peritonitis with initial symptoms referred to the right lower abdomen led to the drainage of a supposed atypical appendical abscess. At the necropsy an intact appendix, extensive pelvic, retrocecal and subphrenic peritonitis, recent general peritonitis, and secondary right empyema were found. In another case of general streptococcal infection with positive antemortem blood cultures following diphtheria, necropsy revealed terminal bronchopneumonia, acute purulent bronchitis, acute fibrinous pleurisy and left suppurative cervical lymphadenitis and gluteal abscess.

In the fourteen cases coming to necropsy, general serofibrinopurulent pleurisy, either primary or secondary, was present in all except one. The exudate was similar in all, lemon tinted serous fluid more or less turbid containing pus cells and enormous numbers of streptococci. Most of the pus cells were attached with fibrin to the pleura, forming a thick adherent matlike layer on the pleural surfaces. In some cases in addition to the main pleural involvement, smaller interlobar pockets of thicker yellowish green exudate were found, some having the appearance of a somewhat older lesion in which granulations could be demonstrated. Bronchopneumonia, more or less extensive, sometimes almost lobar in distribution, was present in all. Compression atelectasis often made difficult the interpretation of the macroscopic examination. Mucopurulent bronchitis was present in all cases, and in many cases tonsillitis and laryngitis with edema were made out. As Mathers has pointed out, general lymphatic enlargement, peribronchial, mediastinal, cervical and mesenteric, is generally present. The spleen, however, was only slightly enlarged, and in some there was no appreciable enlargement.

It is perhaps a debatable question whether the course of events is bronchitis, bronchopneumonia and finally empyema, or whether the lesion is primarily a serous membrane infection with, in the pleurisies, secondary invasions of the lung. Certainly we have sometimes found such a rim of infiltrated lung lying next to the infected pleura. Possibly a middle ground may be taken, that in many cases the primary infection reaches the pleura by extension from a bronchopneumonia more or less extensive, but that in other cases the origin is hematogenous, as in the case of septicemia following diphtheria. Further evidence in favor of the direct hematogenous infection of serous membrane is found in the fact that in two instances the infection occurred first clinically in the peritoneum, pus being demonstrated by operation in one, and in both at necropsy; in one, peritonitis was evidently as old as, and in the other much older, than the accompanying empyema. In the latter a recent vegetative endocarditis was also present.

In all fourteen cases coming to necropsy, streptococci (usually hemolytic) were obtained by culture from the heart blood or spleen and from the pleural or pericardial or peritoneal exudates. In three cases, streptococci were recovered in blood cultures antemortem. In several cases also of the group of convalescent drained empyemas, streptococci were obtained in blood cultures during the height of the infection.

The sputums have been typed, some by the use of mice, some by direct culture in blood glucose broth. None of the organisms thus cultivated from these cases has agglutinated with antipneumococcic serums of Types I, II or III.

During the latter part of the period of acute respiratory infections, large numbers of throat cultures of selected companies were being made for other purposes on blood agar plates. Hemolytic streptococci were observed in these cases in about 70 per cent. of the men examined, showing the widespread distribution of streptococcal infection in soldiers apparently healthy.

CLINICAL COURSE

In the majority of the thirty cases studied, the chief symptoms were pulmonary, with a history in most of these of "cold," and of severe cough in many. In several the history was that of a sudden onset with chill and pleural pain; but even in these a more careful inquiry elicited the statement that there had existed an antecedent bronchitis. In the case of primary peritoneal infection following measles, the first symptom was lower abdominal pain.

The physical signs are frequently misleading, especially in the cases in which the early course is that of pneumonia. In these, signs of consolidation, perhaps irregular in distribution, may be made out; and without marked alteration in physical signs, the more serious condition of the patient indicates an extension of the process. This extension may of course be due to additional lung involvement, or increase in severity of the septicemia; but not infrequently, exploratory puncture yields a streptococcus-laden pleural exudate. In other cases in which the physical signs have been carefully observed and recorded from day to day, the rapidity with which the empyema develops, with displacement of the apex beat and other coincident signs within a few hours has been repeatedly remarked. The puzzling physical signs have been in part explained in some of the cases in which operation has been performed, and in some at necropsy by the finding of extensive adhesions both old and recent, which prevented the distribution of pus, characteristic of fluid in a chest in which the pleura is free.

In some fatal cases in which pulmonary signs were of only four or five days' duration, the pathologic findings indicated that pleurisy, often interlobar, must have been present previously, at a time when the patient was in relatively good physical condition with little or no fever.

In addition to frequent examination and the careful use of the exploring needle, the fluoroscope has been of assistance. Repeated leukocyte counts also have helped to determine an increase in the extent of the infection.

In the care of these cases it is important to bear in mind that this type of empyema is entirely different in its clinical course from the empyema that follows true lobar pneumonia. The exudate usually contains enormous numbers of streptococci, and on early operation and thorough drainage depends the chances of recovery. Even when early drainage is obtained, the infections of other portions of the pleura not accessible to drainage by reason of adhesions, the simultaneous infection of the pericardium, and the severity of the blood infection, preclude the possibility of recovery in some cases. In four of the fatal drained cases, vegetative endocarditis was found.

SUMMARY

Of the thirty cases, including fourteen fatal cases, twelve followed measles; and in eight, the physical signs of consolidation (in the cases examined at necropsy, bronchopneumonic in distribution), which preceded the demonstration of the empyema, led to a primary diagnosis of pneumonia. Our experience with these streptococcal infections suggests that while measles is an important predisposing factor, other infections, as bronchitis, tonsillitis, diphtheria, and other conditions, such as exposure and excessive fatigue, must be included—in short, anything that may reduce resistance to infection by an organism quite generally distributed during the epidemic of colds and bronchitis, in the noses and throats of the apparently healthy as well as the sick.

Special Article

SYNTHETIC DRUGS II [*]

JULIUS STIEGLITZ, Ph.D., Sc.D., Chem.D.

CHICAGO

(*Continued from page 537*)

It has been suggested that the new official names for licensed synthetic drugs be kept prominently before physicians until they have become by repetition familiar to the profession. They are:

Arsphenamine, introduced as "salvarsan."
Procaine, introduced as "novocaine."
Barbital, introduced as "veronal."
Barbital-Sodium, introduced as "veronal-sodium."

SELECTION OF SYNTHETICS

One of the most impressive lessons taught by the stoppage of importations of synthetic drugs as a result of the war is the fact that only a comparatively small proportion of the synthetics still protected by patents and introduced into this country and widely advertised before the war has been found essential for the proper medical care of the people. Of this small proportion, only a very few have been in such urgent and widespread demand that manufacturers have been glad to undertake their preparation without feeling that they were entering on the enterprise simply as an act of patriotic sacrifice. There has been a rush for licenses for the manufacture of arsphenamine, procaine and barbital, the eagerness of would-be licensees falling off for these drugs in the order in which they are named. In the case of other patented synthetics, with the sole exception of phenyl cinchoninic acid (introduced as atophan) which will be discussed below, there has been manifested considerably greater reluctance on the part of manufacturers to embark on their preparation. This situation has been due primarily to the fact that the demand for the drugs mentioned is a very large one and offered a good market, while for other synthetic drugs the demand has not been as attractive from the point of view of quantities of supplies needed.

In view of the situation and because the committee of the National Research Council felt that the wise course would be to concentrate its efforts to interest manufacturers in the most essential of the long list of synthetic drugs, eminent physicians have been consulted in regard to what synthetic drugs were most important. The result of this inquiry will now be given, together with such information concerning the status of each drug mentioned as is at hand. The list includes, besides synthetics protected by patents, for the preparation of which licenses are required, also synthetic drugs which are not protected by patent and for the manufacture of which no licenses are required, as well as, in one or two instances, drugs which are not synthetic preparations but which have been included on account of their specific importance.

---

[*] The information conveyed in these articles is based on the latest reports to the writer: it is probably not complete as to all details, but is published now to avoid further delay in bringing the main facts before the medical profession. The writer will be glad to receive information to be used later according to his best *judgment*.

THE STATUS OF SYNTHETIC DRUGS CONSIDERED ESSENTIAL

1. *Anesthetics* (local).—The subject of licensed local anesthetics was discussed in the first article.[1]

While there has been considerable demand for *orthoform-new* (methyl meta-amino-para-oxybenzoate $(NH_2)(OH)C_6H_3CO_2CH_3$), the supplies of the drug were reported to the committee as exhausted. Anesthesine (see below) is an excellent substitute for this drug; it is said in some respects to be superior to it,[2] presumably on account of the absence of the phenolic hydroxyl group and perhaps also because of the presence of an ethyl rather than a methyl alcohol group.

Anesthesine, ethyl para-amino-benzoate ($H_2NC_6H_4.CO_2C_2H_5$) is easily prepared, for instance, in the course of the manufacture of procaine, from paranitrobenzoic acid. It may be obtained from the Farbwerke Hoechst Company, 122 Hudson Street, New York. The Abbott Laboratories, Ravenswood, Chicago, holders of a license to manufacture procaine, are also preparing to make anesthesine.

Holocaine hydrochloride, acet-di-para-oxyphenylamidine hydrochloride $CH_3C:(NC_6H_4OC_2H_5)(NHC_6H_1OC_2H_5).HCl$, especially needed for the work of oculists, has only recently been brought to the attention of the committee. It is closely related to acetphenetidine, which may be converted into holocaine by a comparatively simple process. A manufacturer in possession of large stocks of acetphenetidine has been urged to meet the demand for holocaine, and there is no question that the drug can be supplied.

2. *Antipyretics.*—Acetanilid, acetphenetidine (introduced as phenacetine) and acetylsalicylic acid (introduced as aspirin) are being manufactured now by a long list of American firms. Pyramidon, dimethylaminoantipyrine, is available from the Farbwerke Hoechst Company, 122 Hudson Street, New York. Any manufacturer of antipyrine can easily extend his process to include the preparation of pyramidon.

3. *Antisyphilitics.*—Arsphenamine and neo-arsphenamine were discussed in the previous article.

4. *Diuretics and Uric Acid Eliminants.*—Phenylcinchoninic acid (introduced as atophan): The patents for the manufacture of this drug are claimed to be invalid. The question as to the issuance of licenses for its manufacture is now under consideration by the Federal Trade Commission. It may be obtained from Schering and Glatz, 150 Maiden Lane, New York, the former agents for the German product. It is reported that it is being manufactured by the Calco Chemical Company, Bound Brook, N. J., for Schering and Glatz. The Abbott Laboratories, Chicago, also have planned to manufacture phenyl cinchoninic acid.

Theophyllin, dimethyl-xanthin. (Theocin is a brand name applied to the product of the Bayer Company, Inc., New York.) Merck & Company are prepared to furnish small quantities of theophyllin. Bayer & Company, when last heard from, had no more theocin and did not expect to have any in the immediate future. Thus far the committee has been unable to interest any other manufacturer in the preparation of this article. It is not a simple product to synthesize.

5. *Hypnotics.*—Barbital and barbital-sodium were discussed in the first article. Chloral hydrate, sulphonal and trional, are manufactured by a series of American firms.

Phenylbarbital, phenyl-ethyl-barbituric acid $(C_6H_5)(CH_3)\underbrace{C.CONHCONH.CO}$, introduced as luminal, is in considerable demand for the treatment of epileptic cases. Merck & Company, 45 Park Place, New York, still have supplies of this drug and of its sodium salt, and the same firm is preparing to manufacture these products. The process of manufacture has been worked out in the chemical laboratory of the University of Chicago by Miss Mary Rising and the author. During the course of the work some improvements have suggested themselves, the results of which will shortly be published for the benefit of any would-be manufacturer.

(To be continued)

---

[1] Stieglitz, Julius: Synthetic Drugs, The Journal A. M. A., Feb. 23, 1918, p. 536.

[2] Anesthesin, New and Nonofficial Remedies, 1917, p. 28.

Therapeutics

HAY-FEVER

This troublesome condition is most frequent in the late summer and early fall months, but it may occur at other times of the year in different climates, depending on the susceptibility of an individual to various pollen-bearing plants. While bacteria may increase the intensity of the disease, or may cause a patient to become susceptible to it, still hay-fever is probably always caused by irritating pollen.

The disease is present only in regions where pollen-rich plants predominate, and occurs only when these plants have reached the stage of disseminating the pollen, or when the pollen is artificially introduced into the nostrils of a susceptible person. When a patient is removed from all source of pollen, or when the offending weeds are destroyed in the region in which the patient lives, hay-fever does not occur.

Hay-fever is no respector of persons, and may occur at any age, in both sexes and in any civilized race. It is more frequent, however, in males, and more frequent in the white race than in the colored race. The age of greatest susceptibility, or the age at which most cases develop, seems to be in the decades from 10 to 40. This age of greatest incidence and the reason that males are more affected than females may signify the age and sex most exposed to pollen.

Scheppegrell,[1] president of the American Hay-Fever Prevention Association, finds that hay-fever may be artificially produced at any time in hay-fever subjects. If the inoculation of the irritating pollen, which he finds to be the male elements of the flowering plants, is given to the patient at another period of the year than the hay-fever season, the length and degree of the attack may be accurately controlled. This is because, unlike micro-organisms, the male elements of these pollens cannot reproduce themselves.

The reaction from these pollens he divides into the direct and indirect effect. Some produce the reaction by the local mechanical irritation, and this perhaps even in persons not susceptible to hay-fever. In insusceptible subjects, the reaction ceases as soon as the pollens are discharged. The indirect effect occurs in susceptible persons who are poisoned by absorption of some toxalbumin contained in the pollen.

While the pollen of many plants may cause hay-fever reaction when applied directly to the nostrils, it is only the wind-borne pollens that need to be considered in hay-fever. Scheppegrell states that it is characteristic of hay-fever weeds that they have no attractive flowers or perfumes, and these hay-fever plants are "the ragweeds, wormwoods, cockleburs, careless weeds and grasses." In the United States, the spring type of hay-fever is caused by the grasses, while the fall types are caused more by the ragweeds, the cockleburs and the wormwoods. While it seems to be a fact that goldenrod is a cause of hay-fever, Scheppegrell doubts that it is a frequent cause.

---

[1] Scheppegrell, W.: Hay-Fever and Hay-Fever Pollens, Arch. Int. Med., June, 1917, p. 959.

SUSCEPTIBILITY AND PREDISPOSITION

There can be no question that a susceptibility to hay-fever must exist since so few persons (1 per cent., according to Scheppegrell) in a locality overrun with these weeds are subject to the affliction.

Cooke, Flood, and Coca,[2] after careful investigation of the subject of sensitization, sum up thus:

> 1. Hay-fever is the clinical symptomatic expression of local hypersensitiveness. The active pollen substances are not toxins.
>
> 2. The hypersensitiveness is established spontaneously and never by immunologic process. This has been shown in two ways: first, by the observation that individuals may be sensitive to pollens of plants that are indigenous in foreign countries and with which they have never come in contact; and second, by the observation that individuals who are naturally sensitive to one protein only cannot be artificially sensitized to another protein, either animal or vegetable.
>
> 3. The sensitization is not directly inherited, although the tendency to spontaneous sensitization is inherited as a dominant character.
>
> 4. The antibody-like substances of human sensitization are not demonstrable in the blood of sensitive persons by any of the immunity reactions. They are present in the cells of the sensitive tissues. They cannot be increased artificially by the usual process of immunization.
>
> 5. The mechanism of the alleviating effect of specific, that is, pollen extract therapy, is the same as that of desensitization in experimental anaphylaxis. The freedom from symptoms lasts as long as the respective "antigenic" substances remain in combination with the antibody-like substances in the tissues.

Persons that are attacked by hay-fever may be predisposed by some other cause than a peculiar hypersensitiveness of the mucous membrane of the nose. These patients, many times, are found to have anatomic malformations, such as hypertrophic turbinates or deviated septums, or other obstructive or irritative conditions in the nostrils, and many of these patients are cured by the removal of these abnormal conditions. In other instances more or less i e
pathologic changes may be present in the
membrane of the nose and adjacent sinuses. I
more, a neurotic individual may be more hyp
tive to this irritation than other persons witho
assignable physiologic, pathologic or anatomic e

On the other hand, as shown by Strouse and Fr
persistence of a hay-fever attack may well be du
an associated bacterial acute or subacute infecti
An associated infection may allow more of the poll
irritant to become absorbed, and the disease is the
intensified and more difficult to cure.

True hay-fever due to pollen should be differentiated from similar conditions caused by emanations from animals, such as the horse, cat or dog, and from odors from certain fruits, flowers, and from ipecac and musk. Sneezing, lacrimation, coughing and asthma may occur in some persons, who have such peculiar idiosyncrasies. Bronchial asthma may occur as a separate entity, or be associated with or follow hay-fever; hence its treatment often is the same as that of the hay-fever.

The symptoms of an attack of hay-fever may begin immediately on inhalation of the pollen, or they may be delayed for a few hours; but sneezing, congestion of the nostrils, reddening and itching of the eyelids or of the inner canthi of the eyes, irritation of the roof of the mouth and throat, and soon more or less spasmodic attacks of sneezing are the primary symptoms. Later rhinitis may occur, with more or less conjunctivitis, pharyngitis and bronchitis. There may be temporary increased temperature, but soon there is depression, more or less weakness, and often subnormal temperature.

GENERAL TREATMENT

1. All predisposing causes should be ascertained, and if possible, removed.

(*a*) Hypertrophic and sensitive mucous membrane of the turbinates should be removed. An obstructive and deflected septum should be corrected. An infected sinus should be cleaned.

(*b*) All infected areas in the mouth and throat should be removed.

(*c*) Meat and purin bases should be removed from the diet. Although the diet should be nutritious, it should contain no irritating substances, such as mustard or other condiments. Tea, coffee and, of course, alcohol are contraindicated. Fish, strawberries, and any other food that is likely to cause anaphylactic irritability should not be allowed.

(*d*) The bowels should be carefully regulated so that toxic intestinal substances are prevented from entering the circulation and adding to the disturbing elements already present in the blood.

(*e*) Alkalis should be administered to decrease any possible hyperacidity of the system. There is no better alkali than sodium bicarbonate, which should be administered for a few days at least in a dose of 1
gram (15 grains ree hours. It is pleasantly
given as an eff lt, or it be given in
combination wi amount bismuth sub-
carbonate, as:

Bismuth s ......
Sodium b ......
Mix, and
Take a po eve

small a h he
ritation e
hat ma
rred,
. T
ate
st
u

o
lac
lac
shou
then

---

[2] Cooke, R. A.; Flood, E. P., and Coca, A. F.: Hay-Fever, Jour. Immunol., 1917, 2, 217.

[3] Strouse, Solomon, and Frank, Ira: Pollen Extracts and Vaccines in Hay-Fever, The Journal A. M. A., March 4, 1916, p. 712.

(*g*) An associated bronchitis should be treated as though the hay-fever were not a factor.

(*h*) A weakened heart should be strengthened. The persistent sneezing and the frequent coughing in hay-fever always more or less weaken and temporarily, at least, dilate a heart, and a hay-fever patient generally is improved by digitalis. Of course, if the heart is sturdy, if there is arteriosclerosis and hypertension, digitalis may not be indicated, and nitroglycerin may be of value. Strychnin is generally inadvisable, on account of its increasing the general nervous irritability.

2. If possible, all pollen-bearing weeds in the immediate neighborhood of the patient's home should be destroyed; otherwise the patient must migrate to some pollen-free region.

3. The symptoms should be ameliorated. Most patients certify to the relief obtained from simple alkaline sprays in the nose and throat. Such treatment is well represented by alkaline tablets, consisting essentially of sodium bicarbonate and borax, dissolved in 60 c.c. (2 fluidounces) of warm water. Epinephrin sprays, in solution of 1: 10,000, are used, and are frequently of value. It may also be used as an ointment of 1: 1,000, and a small portion placed in each nostril. Some persons, while getting immediate relief from epinephrin solutions, later have increased congestion and extra sneezing, but the majority of patients are benefited. Sometimes a weak menthol, or menthol and camphor, oil spray or ointment benefits the patient. While cocain may be used by the physician in his office, if he thinks it advisable in an individual case, such solutions should not be given to the patient, and should not be used frequently by the physician. Boric acid washes and eyedrops will generally relieve the itching of the eyes and eyelids and will be soothing in conjunctivitis. If the nasal discharge is very profuse and watery, atropin sulphate in a dosage of 1/500 grain every two hours may be given until there is a dryness of the throat.

If there is much asthma and the patient wheezes and has hard work to get his breath, and the bronchial secretion is not sufficient, sodium iodid in a small dose to cause an increased secretion may be good treatment, although it will almost invariably increase the nasal secretion.

4. The only drugs that have proved of much value in hay-fever are quinin and antipyrin, and these are not very efficient. Large doses of quinin have been found successful in some cases. Antipyrin in large doses has also modified the attacks, much as it may modify the paroxysms of a whooping cough; but the doses must be large, and during its administration the heart should be protected by digitalis. Arsenic and strychnin have been advocated, but have not been proved of much value.

SPECIFIC TREATMENT

Preventive.—Before it is decided to use a pollen extract, it is advisable to ascertain the particular pollen to which the patient is susceptible. The skin test is safe and generally satisfactory; the eye test is hardly justifiable. Various dilutions of different pollen extracts should be tried in this test. The arm is generally employed for this purpose. Several scratches through the epidermis are made, and a drop of the pollen extract, beginning with a well diluted solution, of first one hay-fever weed and then another, is used to note the sensitivity. A patient sensitive to an extract soon shows local irritations at the point of absorption. As soon as the pollen that causes reaction is found (the reaction occurring in from five to fifteen minutes), various dilutions of this particular pollen may be tested to determine the dose correct for this particular patient, and the first dose of injection should be the dose which fails to excite a skin reaction. The first subcutaneous injection should not be given until after all symptoms of the local skin test reaction have subsided.

Turnbull[4] has demonstrated something that seems to be of practical interest: He found that some of these hay-fever patients showed a cutaneous reaction from the proteins of wheat, barley, oats, corn and rice, and some even showed a reaction, especially to wheat, on the respiratory tract. Therefore, he believes that hay-fever patients should avoid bread and boiled cereals, and use only the dry, prepared cereals, and he finds that patients so arranging their diet are more quickly cured of their hay-fever.

As it is not always feasible to test out the individual pollens as described above, the stock preparations of mixed spring or fall pollens may be used. Full directions for the use of these pollen extracts for diagnostic purposes, for immunization, and for curative purposes, come with the package.

The preventive treatment of hay-fever should be begun about eight weeks prior to the season in which the patient is susceptible. Ordinarily from ten to fifteen injections are required, and they should be given at two or three day intervals, depending on the amount of reaction. If symptoms of anaphylaxis or hay-fever symptoms occur, the dose should be smaller and less frequent. If the patient, from such injections, is immune for that year, he may be immune to the hay-fever pollen the following year; but it seems to have been shown that this immunity is only weak and rather ineffective by the third year. However, sufficient statistics have not yet been offered to show how long an immunity may last; also failure to produce immunity must be expected. The theory of this treatment is that a person sensitive or sensitized to a certain pollen may be desensitized by exhausting from the body cells the specific proteolytic enzymes by the pollen protein injection.

Curative.—Theoretically and practically there can be no antiserum prepared to treat pollen infection or hay-fever. Rarely, perhaps, the hay-fever may be aborted, after it has begun, by a few injections of a pollen extract; but not enough data have been presented to show the value of the vaccine treatment during the active process of hay-fever. The symptoms could easily be aggravated and perhaps become serious by a large dose of pollen extract. Consequently, only very small doses should be tried, at first, to see what reaction the patient shows, and with gradually ascending doses the susceptibility can be ascertained and the pollen curative treatment tried.

It would be inexcusable, however successful in individual cases the pollen treatment might prove to be, to omit the therapeutic suggestions already mentioned.

It would also be inexcusable to depend on possible immunization for the following year by means of pollen extracts and to omit a careful study of the patient to eliminate, if possible, all predisposing causes of hay-fever disturbances.

---

[4] Turnbull, J. A.: Boston Med. and Surg. Jour., 1916, 175, 931.

California. They submit that there is no difference in the muscular strength of men and women which is due to sex as such. The differences frequently found are attributable to differences in the use of the muscles, brought about by the conventional limitations of activity or by dress. A high degree of muscular power in a woman, Mosher and Martin add, in no way lessens her racial efficiency. Lack of muscular power, as in the pectoral muscles, may be a distinct racial disability.

Whatever social or personal preferences may dictate, the need of woman's work at the present time is beyond dispute. Aside from the ethics or the philanthropy of the situation, it is gratifying to learn that *woman is not penalized with all the* insurmountable physical handicaps with which tradition has invested her; nor is she likely to suffer from the actual exercise of powers with which she has been endowed perhaps in more generous measure than either mankind or woman herself has suspected. The poet may still be content with the Sanskrit characterization of woman:

> There in the fane a beauteous creature stands,
> The first best work of the Creator's hands,
> Whose slender limbs inadequately bear
> A full-orbed bosom and a weight of care;

but the physiologist has discovered far greater potential powers in the so-called "weaker" sex.

FOOD AND OBESITY

It is easy to assert in an offhand way, as do the majority of writers on nutrition, that obesity or the deposition of fat in the body is due to "superalimentation or the consumption of food in excess of the requirements," and that this is aided by "insufficient exercise, diminished metabolism, or nutritional disturbance of glandular and trophic origin."[1] Leaving aside the accepted instances of admitted pathologic obesity, there remain the familiar types of persons in whom we somehow suspect an indefinable "disposition" toward corpulence. They will frequently deny that their food intake is unduly liberal, and they may even claim to observe abstemiousness in diet. Not infrequently one may see specimens of the obese and the thin in the same family and household under common conditions of diet which fail to suggest any obvious explanation for such inequalities in size. Thus it has come about that obesity has been regarded by many students of physiology as an exemplification of an altered metabolism—as a lowering of the exchange of materials with a consequent deposition of fat. In a classic experiment by Rubner,[2] who compared the metabolism of a boy who was obese with that of his brother, the fat brother proved to have a larger total metabolism than the lean one, but also a larger body surface. Compared on the basis of their surface areas, the metabolism of the boys was the same.

Friedenthal[3] has suggested that the complaint of many corpulent persons can be understood when they declare that they continue to put on weight with an absolutely lower ingestion of food. In ratio to their small proportion of active tissue (contrasted with fat depots or inert tissue), the ingested food is frequently not small, so that a portion of it is still available for weight increment. Reviewing the somewhat conflicting views on this subject a few years ago, von Fürth[4] remarked that perhaps it would be best to foresee that the methods of investigation now at our command are not good enough to allow us to say that there is a true and constant abnormality in the metabolism of all obese individuals; which does not say, however, that such fault does not exist.

Abnormalities of a still different order have also been attributed to the body that is obese. It has been charged with a sort of metabolic wastefulness. The best illustrations are derived from the domain of animal husbandry, in which the fattening of the individual has become an art rather than an accident. It is known that the gain in live weight secured per unit of feed consumed diminishes as the fattening progresses. Is this, too, due to some perversion of metabolism in obesity? Armsby and Fries,[5] who have made an accurate investigation of this problem, deny that it is due to the supposed lower utilization of food by the fattened as compared with the thin individual. They found the corresponding rations digested equally well by the fattened and unfattened animal. These investigators at the Institute of Animal Nutrition of the Pennsylvania State College have also approached the question whether, with the progress of the fattening, the body cells become less efficient in the manufacture of fat from other nutrients, or whether the *cells of the adipose tissue, as they become loaded with fat, offer, as it were, an increasing resistance to the* deposition of added fat, to overcome which requires an expenditure of energy.

The answer to these inquiries is of interest not only to the cattle feeder who must count the cost of "finishing" his product for the market, but likewise to students of human nutrition. They raise the question of unique nutritive needs in the case of the obese. Carefully made observations on fattened cattle[5] indicate clearly that the net energy values of the ration and the percentages of metabolizable energy which were available for gain were only slightly less in the fattened than in the unfattened condition in the same individual. However, after extensive fattening, the maintenance requirement was increased as much as 36 per cent. in one case—an increment far larger than the increase in size or body surface would account for. Arsmby and Fries attribute the lower economic efficiency of the fattened animal to this higher maintenance requirement of food, rather than to any noteworthy difference in the utilization of the surplus of feed over the maintenance requirement. If the same manifestation of uneconomic use of food in the obese applies to man, there is an added force to the Food Administration's advice to our corpulent citizens to burn their own fat and thereby save fuel for the nation's fighters.

---

[1] Tibbles, W.: Dietetics or Food in Health and Disease, 1914, p. 452.

[2] Rubner, M.: Beiträge zur Ernährung im Knabenalter, 1902.

[3] Friedenthal, H.: Centralbl. f. Physiol., 1909, **23**, 437.

[4] Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, 1916, p. 394.

[5] Armsby, H. P., and Fries, J. A.: Influence of the Degree of Fatness of Cattle upon their Utilization of Feed, Jour. Agric. Research, 1917, **11**, 451.

THE PEORIA OUTBREAK

It is disappointing to find that widespread epidemics due to a sewage-contaminated water supply still occur with relative frequency in large and civilized communities. Peoria is the third large Illinois city to suffer from a visitation of this sort within a few years, similar outbreaks having occurred at Rockford and Quincy a few years ago. In the last named cities the outbreak was clearly traced to the water supply, and the circumstances leading up to the occurrence were fully investigated. In both Rockford and Quincy the outbreak of gastro-intestinal disease was followed by one of typhoid fever. It is yet too early to learn whether Peoria will be afflicted in like manner, but the health authorities in that city must be awaiting developments with anxiety. In the majority of such outbreaks everywhere typhoid with its relatively long period of incubation has been a sequel to the more sudden and more extensive as well as more transient epidemic of gastro-enteritis.

Owing to the fact that no complete investigation and report on the Peoria situation have yet been made by the local authorities, we are not in a position to state exactly how the water contamination occurred. The fact that the water company is privately owned may perhaps explain in part the difficulties of carrying through a complete investigation. It can hardly be believed, however, that the Peoria authorities will allow the matter to rest here, particularly with the shadow of a possible typhoid epidemic hanging over them. The citizens of Peoria will doubtless demand that a searching inquiry be made, and that so far as practicable the conditions at the water works and the circumstances preceding the outbreak be brought to light.

The state of Illinois has for some years maintained an expert staff and excellent facilities for water examination in connection with the State Water Survey, with headquarters at the University of Illinois. There is also a well organized Illinois Water Supply Association, with membership composed of the various water works superintendents and other officials. It is somewhat singular that three of the most serious outbreaks of water-borne disease that have occurred in this country in the last few years should have occurred in this state. Both the Rockford and the Quincy epidemics were due to something approaching mismanagement of the water supply systems, and from the information furnished in the report of our special investigator published last week it may be conjectured that the Peoria outbreak may have been due to some form of carelessness or negligence on the part of the responsible authorities.

It is somewhat surprising that in a city the size of Peoria an efficient municipal health organization should not be provided. We understand that the Peoria health officer is not a full-time appointee, and that no systematic oversight of the bacterial condition of the water supply has been practiced. In Peoria as in many other cities there have doubtless been some unsettling changes in the office of the health commissioner, as a result of the shifting of personnel necessitated by the war; but the health of a thriving city is too important to be jeopardized in this way except in dire need. There seems little doubt that Peoria, like many other cities of its class, is mistaken in supposing that the health work of the city can be properly administered with part-time service and with insufficient staff and appropriations. There is a kind of efficiency just as necessary at this time in civil life as in the military camps. If Peoria reaps an aftermath of typhoid with its roll of deaths, the appeal to the imagination of the average citizen may be greater than if no further development takes place; but the outbreak, as we now know about it, must be sufficiently impressive to the responsible authorities. In public health affairs, eternal vigilance is the price of safety.

Current Comment

REGULATIONS ON PHYSICAL EXAMINATIONS FOR SELECTIVE SERVICE

After The Journal had gone to press last week and some 18,000 copies were printed, a telegram containing important changes in the regulations covering the physical examination of registrants for selective service was received from the Provost Marshal-General, requesting publication in the current issue. In accordance with this request the presses were stopped and the new modifications immediately inserted. This will explain why the matter was printed in some copies of The Journal and not in others. In brief, the changes grant to the local boards certain powers previously delegated to the medical advisory boards. They are incorporated in the three following statements:

> Local Boards may accept registrants for special and limited military service but must refer all doubtful and remediable cases to the Medical Advisory Boards.
>
> Local Boards can accept or reject for general military service and may also accept for special or limited military service but must refer all doubtful or remediable cases not falling within said three classes to the Medical Advisory Board.
>
> Local Boards may accept a registrant as physically qualified for special or limited military service in a named occupation or capacity without reference to the Medical Advisory Board.

California. They submit that there is no difference in the muscular strength of men and women which is due to sex as such. The differences frequently found are attributable to differences in the use of the muscles, brought about by the conventional limitations of activity or by dress. A high degree of muscular power in a woman, Mosher and Martin add, in no way lessens her racial efficiency. Lack of muscular power, as in the pectoral muscles, may be a distinct racial disability.

Whatever social or personal preferences may dictate, the need of woman's work at the present time is beyond dispute. Aside from the ethics or the philanthropy of the situation, it is gratifying to learn that woman is not penalized with all the insurmountable physical handicaps with which tradition has invested her; nor is she likely to suffer from the actual exercise of powers with which she has been endowed perhaps in more generous measure than either mankind or woman herself has suspected. The poet may still be content with the Sanskrit characterization of woman:

> There in the fane a beauteous creature stands,
> The first best work of the Creator's hands,
> Whose slender limbs inadequately bear
> A full-orbed bosom and a weight of care;

but the physiologist has discovered far greater potential powers in the so-called "weaker" sex.

FOOD AND OBESITY

It is easy to assert in an offhand way, as do the majority of writers on nutrition, that obesity or the deposition of fat in the body is due to "superalimentation or the consumption of food in excess of the requirements," and that this is aided by "insufficient exercise, diminished metabolism, or nutritional disturbance of glandular and trophic origin."[1] Leaving aside the accepted instances of admitted pathologic obesity, there remain the familiar types of persons in whom we somehow suspect an indefinable "disposition" toward corpulence. They will frequently deny that their food intake is unduly liberal, and they may even claim to observe abstemiousness in diet. Not infrequently one may see specimens of the obese and the thin in the same family and household under common conditions of diet which fail to suggest any obvious explanation for such inequalities in size. Thus it has come about that obesity has been regarded by many students of physiology as an exemplification of an altered metabolism—as a lowering of the exchange of materials with a consequent deposition of fat. In a classic experiment by Rubner,[2] who compared the metabolism of a boy who was obese with that of his brother, the fat brother proved to have a larger total metabolism than the lean one, but also a larger body surface. Compared on the basis of their surface areas, the metabolism of the boys was the same.

Friedenthal[3] has suggested that the complaint of many corpulent persons can be understood when they declare that they continue to put on weight with an absolutely lower ingestion of food. In ratio to their small proportion of active tissue (contrasted with fat depots or inert tissue), the ingested food is frequently not small, so that a portion of it is still available for weight increment. Reviewing the somewhat conflicting views on this subject a few years ago, von Fürth[4] remarked that perhaps it would be best to foresee that the methods of investigation now at our command are not good enough to allow us to say that there is a true and constant abnormality in the metabolism of all obese individuals; which does not say, however, that such fault does not exist.

Abnormalities of a still different order have also been attributed to the body that is obese. It has been charged with a sort of metabolic wastefulness. The best illustrations are derived from the domain of animal husbandry, in which the fattening of the individual has become an art rather than an accident. It is known that the gain in live weight secured per unit of feed consumed diminishes as the fattening progresses. Is this, too, due to some perversion of metabolism in obesity? Armsby and Fries,[5] who have made an accurate investigation of this problem, deny that it is due to the supposed lower utilization of food by the fattened as compared with the thin individual. They found the corresponding rations digested equally well by the fattened and unfattened animal. These investigators at the Institute of Animal Nutrition of the Pennsylvania State College have also approached the question whether, with the progress of the fattening, the body cells become less efficient in the manufacture of fat from other nutrients, or whether the cells of the adipose tissue, as they become loaded with fat, offer, as it were, an increasing resistance to the deposition of added fat, to overcome which requires an expenditure of energy.

The answer to these inquiries is of interest not only to the cattle feeder who must count the cost of "finishing" his product for the market, but likewise to students of human nutrition. They raise the question of unique nutritive needs in the case of the obese. Carefully made observations on fattened cattle[5] indicate clearly that the net energy values of the ration and the percentages of metabolizable energy which were available for gain were only slightly less in the fattened than in the unfattened condition in the same individual. However, after extensive fattening, the maintenance requirement was increased as much as 36 per cent. in one case—an increment far larger than the increase in size or body surface would account for. Arsmby and Fries attribute the lower economic efficiency of the fattened animal to this higher maintenance requirement of food, rather than to any noteworthy difference in the utilization of the surplus of feed over the maintenance requirement. If the same manifestation of uneconomic use of food in the obese applies to man, there is an added force to the Food Administration's advice to our corpulent citizens to burn their own fat and thereby save fuel for the nation's fighters.

---

[1] Tibbles, W.: Dietetics or Food in Health and Disease, 1914, p. 452.

[2] Rubner, M.: Beiträge zur Ernährung im Knabenalter, 1902.

[3] Friedenthal, H.: Centralbl. f. Physiol., 1909, **23**, 437.

[4] Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, 1916, p. 394.

[5] Armsby, H. P., and Fries, J. A.: Influence of the Degree of Fatness of Cattle upon their Utilization of Feed, Jour. Agric. Research, 1917, **11**, 451.

THE PEORIA OUTBREAK

It is disappointing to find that widespread epidemics due to a sewage-contaminated water supply still occur with relative frequency in large and civilized communities. Peoria is the third large Illinois city to suffer from a visitation of this sort within a few years, similar outbreaks having occurred at Rockford and Quincy a few years ago. In the last named cities the outbreak was clearly traced to the water supply, and the circumstances leading up to the occurrence were fully investigated. In both Rockford and Quincy the outbreak of gastro-intestinal disease was followed by one of typhoid fever. It is yet too early to learn whether Peoria will be afflicted in like manner, but the health authorities in that city must be awaiting developments with anxiety. In the majority of such outbreaks everywhere typhoid with its relatively long period of incubation has been a sequel to the more sudden and more extensive as well as more transient epidemic of gastro-enteritis.

Owing to the fact that no complete investigation and report on the Peoria situation have yet been made by the local authorities, we are not in a position to state exactly how the water contamination occurred. The fact that the water company is privately owned may perhaps explain in part the difficulties of carrying through a complete investigation. It can hardly be believed, however, that the Peoria authorities will allow the matter to rest here, particularly with the shadow of a possible typhoid epidemic hanging over them. The citizens of Peoria will doubtless demand that a searching inquiry be made, and that so far as practicable the conditions at the water works and the circumstances preceding the outbreak be brought to light.

The state of Illinois has for some years maintained an expert staff and excellent facilities for water examination in connection with the State Water Survey, with headquarters at the University of Illinois. There is also a well organized Illinois Water Supply Association, with membership composed of the various water works superintendents and other officials. It is somewhat singular that three of the most serious outbreaks of water-borne disease that have occurred in this country in the last few years should have occurred in this state. Both the Rockford and the Quincy epidemics were due to something approaching mismanagement of the water supply systems, and from the information furnished in the report of our special investigator published last week it may be conjectured that the Peoria outbreak may have been due to some form of carelessness or negligence on the part of the responsible authorities.

It is somewhat surprising that in a city the size of Peoria an efficient municipal health organization should not be provided. We understand that the Peoria health officer is not a full-time appointee, and that no systematic oversight of the bacterial condition of the water supply has been practiced. In Peoria as in many other cities there have doubtless been some unsettling changes in the office of the health commissioner, as a result of the shifting of personnel necessitated by the war; but the health of a thriving city is too important to be jeopardized in this way except in dire need. There seems little doubt that Peoria, like many other cities of its class, is mistaken in supposing that the health work of the city can be properly administered with part-time service and with insufficient staff and appropriations. There is a kind of efficiency just as necessary at this time in civil life as in the military camps. If Peoria reaps an aftermath of typhoid with its roll of deaths, the appeal to the imagination of the average citizen may be greater than if no further development takes place; but the outbreak, as we now know about it, must be sufficiently impressive to the responsible authorities. In public health affairs, eternal vigilance is the price of safety.

Current Comment

REGULATIONS ON PHYSICAL EXAMINATIONS FOR SELECTIVE SERVICE

After The Journal had gone to press last week and some 18,000 copies were printed, a telegram containing important changes in the regulations covering the physical examination of registrants for selective service was received from the Provost Marshal-General, requesting publication in the current issue. In accordance with this request the presses were stopped and the new modifications immediately inserted. This will explain why the matter was printed in some copies of The Journal and not in others. In brief, the changes grant to the local boards certain powers previously delegated to the medical advisory boards. They are incorporated in the three following statements:

> Local Boards may accept registrants for special and ited military service but must refer all doubtful and r able cases to the Medical Advisory Boards.
>
> Local Boards can accept or reject for general service and may also accept for special or limited service but must refer all doubtful or remediable falling within said three classes to the Medic Board.
>
> Local Boards may accept a registrant as phy for special or limited military service i tion or capacity without reference to th Board.

special training in various subjects are being established at the camp. It is likely that with the continuation of a centralization at Camp Greenleaf the school at Fort Riley will be discontinued as were those at Fort Benjamin Harrison and Camp Dodge, Iowa.

The exercises at Camp Greenleaf will be in charge of an auditorium committee consisting of Lieut.-Col. Roger Brooke, M. C.; Majors Mahlon Ashford, M. C.; H. L. K. Shaw, M. R. C.; N. M. Owensby, M. R. C. The following is the program:

10.00 a.m.—Presentation of Auditorium at the Camp
2.00 p.m.—Review at Fort Oglethorpe
5.00- 7.00 p.m.—Buffet Supper at Hostess' House
7.30 p.m.—Entertainment at Big "Y," Ringgold and Lafayette Rds.

Hospital News

Ten hotels at Vichy, France, have been placed at the disposal of the American forces. Five hospitals are to be installed in the hotel, with accommodations for 7,000 patients.

It is announced that a United States Army depot is to be established at Ellis Island, New York Harbor. This will later be used as a receiving hospital for German prisoners and sick and wounded American soldiers returned from France.

The Hotel Cape May, Cape May, N. J., has been leased by the government for use as a hospital at the rental of $99,000. The building has 600 rooms.

The American Field Hospital at a western front was apparently used as a target in a German air raid, February 16. Fortunately, none of the patients, nurses, officers or men were injured.

New Ocean House at Swampscott, Mass., with the annex and several cottages has been taken over by the government nd will be converted into a reconstruction hospital.. The uildings at present accommodate more than 500 patients.

Bill for Navy Nurse Corps

Under date of February 1, Representative Hicks of New York introduced a bill to prescribe the personnel of the Navy Nurse Corps, method of appointment, etc. The bill provides, in brief, that the Nurse Corps (female) of the Medical Department of the Navy shall hereafter be known as the Navy Nurse Corps, and shall consist of one superintendent and as many chief nurses and research nurses as may be needed. The superintendent shall be appointed by the Secretary of the Navy and all other members by the Surgeon-General, by and with the approval of the Secretary of the Navy. The chief nurses are to be appointed by promotion from the other members. The annual rate of pay to be: for the superintendent, $2,400; for the nurses, $840, with increases for each three-year period; and for the chief nurses, $360, in addition to the pay of a nurse. All members shall receive $10 per month additional when serving outside the United States. There are also provisions for retirement pay, leave of absence, transportation and subsistence, and a final provision repealing previous regulations covering these points.

Extracantonment Health Zone Regulations

In carrying out the cooperative plan of the United States Public Health Service, the Medical Corps of the U. S. Army and state and local health authorities in extracantonment zones for protecting the health of the troops in camps and of the inhabitants of such zones, new regulations have been adopted in a number of zones (*Public Health Reports,* Feb. 15, 1918). Among these are rules adopted Jan. 11, 1918, by the health board of Des Moines, in the zone of Camp Dodge, for the control of venereal diseases. Regulations were also prescribed in regard to communicable diseases, and the city health officer was relieved by ordinance of all other duties, and a number of new officers, inspectors, clerks and visiting nurses provided to assist in carrying out the regulations. At Richmond, Va., in the zone of Camp Lee by regulation of the health department of Jan. 16, 1918, druggists and other retailers of drugs and remedies advertised to relieve persons suffering from contagious diseases are required to procure receipts from such purchasers, with name and address. The dealers are required to report to the health department monthly. Another regulation controls the handling of live poultry and other food products, and still another gives a revised list of reportable communicable diseases, with a special list of diseases which are to be reported as soon as their presence is suspected. The U. S. Public Health Service in cooperation with the commanding officer of the United States troops at Fort Oglethorpe, Ga., has issued regulations for the extracantonment zone covering barber shops, billiard halls, manicuring parlors, hotels, restaurants and eating houses.

Medical Officers Discharged from the Service

Rather sensational statements have appeared in some of the newspapers regarding the number discharged from the Medical Reserve Corps and the reasons therefor. Certain newspapers seem to have assumed that all who have been discharged were inefficient, and numerous editorial comments have been based on this assumption. Briefly, the facts are:

Up to March 1, including those connected with the National Guard, 1,078 medical officers had been honorably discharged. If this number had been dismissed because of inaptitude or incompetency, it would be a serious matter. The following is the official tabulation as of March 1, 1918:

DISCHARGES IN THE MEDICAL RESERVE CORPS

Causes	
Physical disability	369
Inaptitude	150
Other branches of the service	297
Domestic troubles	26
Resignations	88
Needed by the community	32
Deaths	28
Total	990

DISCHARGES IN THE MEDICAL CORPS, NATIONAL GUARD

Causes	
Physical disability	25
Inaptitude	10
Other branches of the service	15
Domestic troubles	0
Resignations	34
Needed by the community	1
Deaths	3
Total	88

It will be noted that, including the two corps, 312 are listed under the term "other branches of the service." This refers to those who have been transferred to the regular Medical Corps, as well as to those who have gone outside of the medical department; that is, those who have taken appointments in the line. Deducting these 312 men who have not actually been discharged from the Army and 31 who have died, leaves 735 who have been honorably discharged from the army for all causes. One hundred and twenty-two have resigned; 33 "needed by the community"; 26 were compelled to give up their work on account of domestic complications—which in the majority of instances means family illness, death, etc.; 394 were dismissed for physical disability and 160 for inaptitude. It is quite possible that some of those who have been dismissed for "physical disability" were inefficient in their work but certainly only a small percentage.

Prevention of Smallpox Among Selected Men

The office of the Provost-Marshal-General has issued the following statement of precautions against introduction of epidemic diseases into cantonments:

1. At this season of the year there is a maximum prevalence of communicable diseases, and there now is an epidemic of mild smallpox in numerous localities in the central and southern states often unrecognized and not under medical care.

2. To modify and as nearly as may be to prevent the introduction of communicable epidemic diseases into the cantonments through the mobilization of selected men coming from districts in which communicable epidemic diseases exist, the following precautions should be taken:

(*a*) Where smallpox exists in epidemic form, all selected men within the current quota who are within the district in which the epidemic exists should be immediately vaccinated by the state or local health authorities if, under the local law, such vaccination is compulsory, and if not compulsory, then if such selected men consent to such vaccination.

(*b*) Where typhoid or paratyphoid fever exists in epidemic form, all selected men within the current quota in the district in which the epidemic prevails should be immediately and properly inoculated with standardized triple typhoid vaccine by the state or local health authorities where such inoculation is compulsory, and where not compulsory, then if the selected men consent to the same.

(*c*) Where measles, cerebrospinal meningitis, scarlet fever, virulent streptococcus sore throat, and diphtheria exist in epidemic form, as evidenced by authentic reports from state or municipal or other local health departments, the adjutant-general of the state should make an immediate report of the conditions to the division surgeon at the camp to which the territory in which the epidemic exists is contributory, asking for advice as to whether or not the mobilization of selected men from such districts should be delayed during the prevalence of the epidemic, and also immediately report to this office all such facts as well as any advice received from the camps, and await instructions from this office.

(*d*) The individual in charge of a squad of selected men en route to a mobilization camp should be furnished by the local board with written information for the division surgeon, of the existence of communicable diseases (especially cerebrospinal meningitis and measles) in the district from which the selected men come, to the end that a possible disease carrier may be placed in quarantine.

E. H. Crowder, Provost-Marshal-General,
By Frank Billings, Major, M. R. C.

A MEDICAL OFFICER'S EXPERIENCE IN THE WAR ZONE

The following paragraphs are excerpts from letters written by Major George de Tarnowsky, Chicago, now attached to the American Expeditionary Forces in France, to friends at home:

"I have had six wonderful trips so far, visiting every part of the devastated district, talking to the people, walking through cities and villages where only the streets remain. I have climbed down into marvelous grottoes, caverns and dugouts made by the French and Germans, studying the methods of picking up the wounded, carrying them to these underground rooms for first aid and then transporting them by auto, by rail, by boat, etc., to the various front hospitals. . . .

ATROCITIES

"I have visited over a hundred towns and villages, always in a military auto, with a guide to get me in and out of the maze of trenches. The systematic devastation of the country is one of the things one cannot forgive the Boches. Acres and acres of fruit trees chopped down, the trees lying where they fell, proving that the Boches did not need the wood but only sought the annihilation of a race. All girls of over 14 years have been taken away. One poor woman with seven children had her two daughters 14 and 16 years old taken away by the Boches. Her husband is a prisoner in Germany, and she was severely wounded in the abdomen by a shell. Her farmhouse is half demolished, yet there she was, making a brave fight with her five young ones around her. We sent her bread, potatoes and clothes, and have given her two goats whose milk keeps the youngest three children alive. One dear old peasant woman kissed my hand and said—'We thank Americans for having come to help us.' Her two daughters, both married, and three daughters disappeared in Germany. . . .

PRUSSIAN OFFICERS

"The only time I feel like *smiling* on these trips is when I come across German prisoners rebuilding the villages and roads they have destroyed. France is wisely making them, in a small way, undo the wrong they have done. Cemeteries have been systematically torn up, all the metal from the coffins removed, and the skeletons thrown around on the ground. Everywhere one sees the arrogance and selfishness of the Prussian officer. They lived luxuriously in bomb-proof houses or dugouts, with thick iron and cement walls and roof, while they locked up their poor soldiers in mitrailleuse cages so that they could not escape from shell fire. Always the best of everything for the officers and the worst of everything for their men; such a contrast to the British and French system in which the officer thinks of his men first and of himself last.

"I am constantly amazed at the beautiful democratic spirit which prevails in the French army. Officers and men fraternize openly, and yet the discipline is excellent. The French soldier goes about his duties because he knows it is for the good of the service and of the country—not because he fears to be punished if he doesn't perform his duty. . . .

FRENCH SERVICE

"I have visited many hospitals, including the wonderful one hewn out of the rocks under the famous citadel. Some of the trips were extremely dangerous and we had to take shelter under rocks or crouch down in the bottom of trenches, while bullets and shells whizzed over our heads. When I tell you that I crawled up to a listening post and saw a German soldier 15 yards off in another peep-hole, blinking at me, you can judge of the nearness to the enemy lines. In many places, owing to swamps, etc., no trenches can be built, and we had to dash across the open, one by one, in order not to draw fire. As a rule, they don't waste ammunition on a single soldier, but they have a nasty way of changing their minds without notifying you in advance. The only really hard time I had was in passing from one army zone to another. No automobiles are allowed to pass, so we had to take a train. We were to have been met at the post of —— by another auto, but the train was five hours late, and it was 11 o'clock at night before we reached the place. The auto had departed, leaving no instructions, so there we were, in a pitch dark town, under bombardment. We carried our suitcases with us and started out to find a hotel. All were packed full to overflowing, so, after an hour's futile search, we tramped back to the station to spend the night in the cold, dark waiting room. It was then after midnight, and we hadn't eaten a thing since noon. The officer on guard then suggested that we try a rest home for soldiers on furlough, called "Abri des permissionaire," and showed us the way there. We found two bags of straw and two blankets apiece, *the last ones*. Through the same kind officers the canteen or 'cooperative' was opened for us, and I bought a box of cheese, a piece of sausage, a hunk of bread and a bottle of wine, which we ate at 1 o'clock in the morning. Going to bed was simplicity itself, as we took off our shoes and put on an extra pair of woolen socks. Just as we had tucked ourselves in and our teeth began to chatter from contact with the cold and very damp blankets and straw, two belated French officers came in and looked at us in despair. That they did not curse us simply goes to prove that politeness is an essential part of every Frenchman's make-up. They spent the night trying to keep up a small fire in the one tiny stove which the wooden barrack contained. 'C'est la guerre.' In the morning, as all the water was frozen, we washed our faces with the corner of our handkerchief and reported at headquarters, after drinking a big bowl of hot café au lait.

"There we were given another automobile and sallied forth to complete the trip. Over the farthest north of the cities of that region we saw fourteen aeroplanes fighting over the town, a most thrilling sight. Two nights we slept in officers' barracks in a big hospital center with wonderful underground passages where the wounded were carried during the bombardments; another night I had a cot behind a little grocery store kept by two dear old peasant women. . . .

BRITISH SERVICE

"I spent ten days with the British Army visiting their aid posts and hospitals. During the whole ten days I merely took my coat and trousers off, sleeping with my steel helmet and gas mask ready for emergencies. Two nights I spent at headquarters in an old chauteau which was regularly aimed at by Boche avions; three nights I was in a wooden hut surrounded by sand bags 4 feet high; three nights I had a cubby hole in the cellar of a ruined house, in the center of Ypres, close by the famous cathedral and cloth hall. The last two nights were again spent in a hut, and here not only was the hut surrounded by sand bags, but an extra sand bag wall was built around the cot so that it gave you the effect of jumping into a huge bath tub. The cot—save the mark—consisted of a piece of chicken wire stretched over four boards; two blankets served as a mattress, and two blankets were for covers. At Ypres not only did I have rows of sand bags around, but tiers of sand bags over my head, supported by railway ties. The officers' mess is usually a barrack, or cellar, similarly protected. Yet, in the midst of warfare, with bombardment going on all the time, my servant—as the officers still call their orderlies—brought me hot water to shave with and a small canvas tub in which one could take a sectional bath. In spite of war, we 'dress' for dinner, dressing consisting in taking off one's belt and putting on shiny puttees and shoes. Afternoon tea was still a necessary function, and I was always brought back to mess in time for 5 o'clock toast, jam and buns.

"The officers were a splendid lot of fellows. They were formal the first day, melted in the evening, after chatting for several hours over whisky and soda, and the next morning hailed me as 'tarnasky,' a sure sign—with the British—that you are accepted as a gentleman and a good fellow. Michel had warned me about the sanctity of the morning shave, morning tub, change of shoes and puttees, and removal of belt for supper. In France one puts on the belt for formal occasions. Of course, when I had casually remarked that my grandparents were English, the ice entirely disappeared, and I was at home with them for the rest of my mission.

THE WAR

"I shall describe one scene to give an idea of how hellish war can be. In order to reach some 'pill boxes,' as the British call the cement forts which they use as dressing stations (all of them built by the Germans when they occupied that sector) before the enemy could see us, I was awakened at half past 5 in the morning, given a cup of tea and toast and started at 6 with a captain M. C. as guide. We drove 4 miles in an auto and then got out. I gazed on an endless sea of mud and water. Roads were all destroyed by shell fire and there wasn't a square yard which was not represented by a shell hole as big as our bath room, full of thick, yellow-green water. The only means of advance was along 'duck board' paths 3 feet wide and placed on wooden posts 2 feet above the water. This path was almost 5 miles long, changing direction every 20 yards in order to avoid enfilading fire. One's head gets quite dizzy turning so often. There is not a tree left standing anywhere. Dead bodies of horses were everywhere; I idly counted twenty-four of them while walking less than 500 yards. Bodies of German and British lie here, there, everywhere. Now an arm, now a leg, now a head sticking out of the mud, or bobbing on a pool of water. They cannot be buried, because if one leaves the wooden path one sinks in the mud and is smothered to death in a few minutes. The stench of the atmosphere is something awful.

"We visited the dressing stations, where I met three of the American lieutenants who had crossed over with me on the *St. Louis* in September. All three looked as though they had lost considerable sleep, but they were sticking to their posts like heroes. They had been in that sector only one week, fresh from English hospitals where I had left them. All had bloodshot eyes from living in a dark room with acetylene lights and smoky fires, which they had to keep going in order to keep warm. The actual front lines consist of a series of shell holes connected up, in which one sits or crouches. Water has to be bailed or pumped out almost constantly. A large percentage of the men develop trench foot. I am sorry to say that my feet started to bother me again—worse than ever. However, they are now quite all right, as I have been walking around the hospital for a week with only slippers on and am treating my feet three times daily according to army methods. The men's feet often swell up to such an extent that they cannot get their shoes off, but have to have them cut to pieces.

"The return journey was quite exciting, as the Boche opened a barrage fire between the first 'pill box' and the path we were walking on, thus preventing us from returning to shelter. It was most fascinating to watch the shells falling steadily along our line for five minutes, then jumping forward another hundred yards and smashing things up, and again forward. That is why the paths are built zigzag so that shells can destroy only a small section at a time. At a junction point of these paths some "Tommies" came running at top speed. The leader shouted to me 'Run like hell, sir, they are going to "strafe" this point something horful.' Run like hell we did, and soon got out of range! The fascination of the scene prevented one from getting very scared, but I confess that my knees wobbled a little and that my heart was going pit-a-pat for a few minutes! That wasn't my first baptism of fire, but it was the most exciting. It also gave me an excellent idea of the wholesale wastage of shells in this war. At least 200 shells were fired at us, yet aside from the general splashing of mud, which kept my orderly busy the rest of the day, no one even received a scratch. The very next morning a shell crashed into the door of a pill box and the second one demolished the kitchen nearby. But again no one was hurt. Of course, one is not always so lucky; but it explains the peculiar war philosophy which one quickly acquires at the front. One may be hit at any moment of the day or night; but the chances are so immeasurably in one's favor that aside from taking every possible precaution, one pays no attention to the noises around.

"One of the most exciting scenes I witnessed near Ypres was a British 'sausage' or stationary observation balloon, the cable of which suddenly snapped. Up it shot in the air, the wind rapidly driving it toward the Boche lines. We saw the observer climb out of the basket with the parachute strapped to his shoulders and jump into space, the parachute unfolding and letting him slowly float down toward earth. What a shout of joy went up a few minutes later when the telephone rang to announce the Englishman's safe descent behind his own lines. Another day I counted twenty-six aeroplanes fighting in the air over Ypres; unfortunately, the Boche machines turned tail before any could be bagged.

"The army is splendid. I saw regiments from England, Scotland, Australia and Canada in different sectors; all were splendid looking fighting men, well trained and seasoned. American medical officers are to be found in many of the British hospitals doing noble work; I also met artillery and line officers studying methods of warfare—all eager to learn and all realizing that the American Army must learn this new type of warfare if it does not wish to waste its man power uselessly.".

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 22, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

All Troops	1,506.7
National Guard Camps	1,192.5
National Army Camps	1,835.9
Regular Army	1,360.1

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	50.8
National Guard Camps	44.8
National Army Camps	58.5
Regular Army	45.3

3. CAMPS HAVING ADMISSION RATE FOR DISEASE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Shelby, Bowie, Doniphan, Beauregard, Wheeler, Sevier, Kearny and Logan. NATIONAL ARMY: Camps Travis, Pike, Funston, Dodge, Zachary Taylor, Jackson and Sherman.

4. CAMPS HAVING NONEFFECTIVE RATE HIGHER THAN AVERAGE: NATIONAL GUARD: Camps Bowie, Sevier, Beauregard, Shelby, Wheeler, Kearny and Doniphan. NATIONAL ARMY: Camps Funston, Travis, Pike, Jackson, Zachary Taylor, Dodge and Lee.

5. VENEREAL DISEASES: Annual admission rate per 1,000:

National Guard Camps	51.1
National Army Camps	62.9
Regular Army	81.3

CAMPS HAVING RATE ABOVE AVERAGE: NATIONAL GUARD: Camps Bowie, Wheeler, Logan, Wadsworth and Shelby. NATIONAL ARMY: Camps Pike, Grant, Dix, Jackson, Lee, Lewis and Dodge.

6. NUMBER OF NEW CASES OF PNEUMONIA REPORTED 473

Highest number in any one camp:

National Guard—Camp Cody	46
National Army—Camp Travis	46

7. NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 22, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective per 1000
Wadsworth	3	...	...	34	..	..	...	1	..	1	27.0
Hancock	8	...	...	14	..	..	19	2	8	0	27.0
McClellan	9	...	...	12	..	1	16	1	3	1	32.5
Sevier	9	...	1	20	..	..	7	2	3	8	69.9
Wheeler	17	1	4	43	..	..	1	..	..	4	52.2
Logan	11	...	1	59	..	..	48	..	1	2	35.3
Cody	46	...	...	14	..	..	2	2	4	13	37.7
Doniphan	2	...	1	15	..	..	...	1	..	5	45.5
Bowie	22	...	1	63	..	..	1	3	1	3	70.9
Sheridan	...	...	...	6	..	..	4	..	..	2	23.5
Shelby	3	...	...	26	..	..	1	2	1	3	56.3
Beauregard	6	...	...	17	..	..	2	..	..	8	61.2
Kearny	9	...	...	5	..	..	2	..	9	1	49.8
Devens	5	...	...	15	..	..	10	1	3	3	38.5
Upton	8	...	...	20	..	..	4	..	2	1	24.6
Dix	2	...	...	34	..	..	26	..	6	2	43.6
Meade	2	...	...	26	..	..	9	2	6	4	31.4
Lee	15	...	...	50	..	..	14	3	..	9	63.6
Jackson	10	...	1	31	..	..	6	9	2	6	86.2
Gordon	12	...	...	24	..	..	2	1	0	6	31.1
Sherman	4	...	...	34	..	..	61	..	16	2	52.9
Taylor	19	...	...	13	..	..	5	..	1	7	71.4
Custer	3	...	...	15	..	..	16	..	5	6	44.7
Grant	4	...	...	43	..	..	23	1	17	5	28.3
Pike	19	...	4	87	..	..	7	..	9	7	97.1
Dodge	9	...	...	27	..	..	19	..	18	9	65.7
Funston	4	...	...	7	..	..	1	2	7	2	101.6
Travis	46	...	...	22	..	..	4	2	1	7	93.0
Lewis	21	...	...	47	..	..	40	2	26	2	60.9
Regulars	132	4	5	585	1	2	519	25	129	66	45.3
National Guard in departments	1	...	...	22	..	..	58	..	..	0	
National Army in departments	12	...	1	148	..	..	31	..	32	2	

8. ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Feb. 22, 1918	Regulars in U. S., Week Ending Feb. 22, 1918	National Guard, All Camps, Week Ending Feb. 22, 1918	National Army, All Camps, Week Ending Feb. 22, 1918	Expeditionary Forces, Week Ending Feb. 14, 1918
Pneumonia	21.2	15.3	22.6	23.2	18.5
Dysentery	0.2	0.5	0.1	0.0	0.2
Malaria	0.8	0.7	1.2	0.6	0.2
Venereal	70.7	81.3	51.1	62.9	51.7
Paratyphoid	0.04	0.1	0.0	0.0	0.2
Typhoid	0.1	0.3	0.1	0.0	0.0
Measles	42.9	72.1	16.0	31.4	26.4
Meningitis	2.8	3.5	2.2	2.9	4.2
Scarlet fever	13.8	17.9	4.7	15.1	11.1

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Feb. 24, 1918.

Lieut.-Col. William E. Keller, M. C., from Scranton, Pa., has been relieved as division sanitary inspector and placed in charge of the One Hundred and Third Sanitary Train.

Surgeon-General Gorgas accompanied Secretary of War Baker on a recent inspection of Camp Hancock and the base hospital here.

Major Leonard D. Frescoln, training officer, gave a demonstration, March 1, at the chief of staff's office of methods used in training the Hospital Corps and men of the division in camp sanitation, hygiene and first aid work.

Thirty-Fourth Division, Camp Cody, Deming, N. M.

Feb. 24, 1918.

The general health of the camp has continued good. There have been no epidemics, and no accidents. At the base hospital a new sewerage system placed well below the surface, and frost proof, is approaching completion, permitting of the installation of bath tubs, hand basins, toilets, with running water both hot and cold, and shower baths for the use of patients and officers. A new system of steam heating for operating and examining rooms also is in course of installation.

The organization of the staff and personnel of the hospital has been perfected, and the efficiency of the institution thereby increased; for although the daily census shows a population of 837, yet additional ward space for which there is sufficient equipment is needed. An extension to the present quarters for medical officers is being constructed.

A pavilion for the treatment of psychiatric and nervous patients has been erected containing rooms for the segregation or isolation of disturbed patients, enclosed porches and sun parlors, and equipped with necessary toilet and bathing facilities. This class of patients always present by reason of their turbulent and boisterous conduct a difficult problem, and their management cannot be accomplished satisfactorily otherwise than in the manner which is being carried out.

The cases of pneumonia occurring at this camp which formerly showed a predominance of Type III of the disease of late have almost disappeared. The cases which have been received during the last month have been lobar cases of Type I.

MEDICAL OFFICERS STAGE BOXING SHOW

February 19, the medical officers of the Thirty-Fourth Division staged a boxing show accompanied by incidental musical numbers and recitations. The opening number of the program consisted of musical selections by Captains King and Sprague, and by Lieutenants McGavey, Ogden and Nauestod of the base hospital. This was followed by a popular solo and quartet by four enlisted men of Field Hospital Company No. 135. Then a boxing contest was staged by members of the One Hundred and Ninth Sanitary Train, followed by a selection by the orchestra of the sanitary train. Then came a boxing contest by Drs. McHugh and Robiliard of the One Hundred and Thirty-Sixth Infantry. Private John Brodie of Field Hospital Company No. 134 gave an imitation of Harry Lauder, and Private Al Schueman of Ambulance Company No. 135 gave a series of sleight of hand tricks. This was followed by the heavyweight contest of the evening between Dr. Embree of the Dental Corps and Dr. White of the Veterinary Corps, the animal department finally being successful over that of the teeth. The events concluded with a buffet luncheon.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 4, 1918.

COURT MARTIAL

A general court martial was convened, March 5, to try the case of Major Milton Board, who is charged with being partly responsible for the death of Otho Murray, a private of Cumberland County, Ky. Col. William Guthrie of the Three Hundred and Ninth Engineers is president of the court, and Capt. Reilley of the Three Hundred and Thirty-Fifth Infantry is Major Board's counsel.

LAST DRAFT ARRIVALS

The details worked out for the handling of the last draft arrivals have proved highly successful and have resulted in a great saving of money and wear and tear on equipment. It is said this is the only camp which has adopted this plan of handling the new arrivals. Four medical boards examine the men immediately following their arrival, and uniforms and equipment are not issued until the recruit has been found fit and acceptable. Those failing to measure up are promptly discharged. The medical officers have encountered many amusing incidents. One man was very anxious for fear he would not be accepted, for he said, "I simply could not get along with my wife!" One thousand three hundred men were vaccinated and inoculated in short order.

The new selects will not be allowed to leave camp for two weeks. They will be kept in quarantine from the time they arrive. None will be given passes or furloughs in that time, but will have to remain in their quarters or training area for the prescribed period. This order has been put into effect in the One Hundred and Fifty-Ninth Depot Brigade since the men began reporting in, and is in keeping with the policy of the medical department of the division so new contagious and infectious diseases will not spread to other organizations.

Three distinct battalions of the division, including all officers and men, are under strict quarantine because of both mumps and measles.

NEW DIVISION SURGEON

Lieut.-Col. William A. Smart of the Regular Army Medical Corps arrived at Camp Zachary Taylor last week and took command of the medical department of the Eighty-Fourth Division, succeeding Lieut.-Col. John H. Allen, who was relieved from duty recently. Lieutenant-Colonel Allen remains on duty as camp surgeon, and as such is the ranking medical officer.

It is reported that ninety deaths have occurred at the base hospital since it was first opened.

SPECIAL MESS FOR SICK

Facilities have been provided for the messing of patients at regimental infirmaries whenever overcrowded conditions at the base hospital necessitate the keeping of patients in bed in the regimental infirmaries. Authority for such action has been given in an order from the adjutant-general, which was published for the information and guidance of all regimental separate battalion and independent unit commanders at the cantonment. The commanding generals of all divisions in the regular national armies and national guards are authorized under such conditions to appoint one acting cook for each infirmary. These acting cooks will be relieved as soon as the necessity for caring for the bed patients in the regimental infirmaries is terminated.

CONFERENCES ON SICK

Orders have been issued for a meeting every Thursday night at 7 o'clock for all the separate unit surgeons, and a conference will be held on all admissions and discharges.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

March, 4, 1918.

ALIBI

The absence of a Camp Grant letter from this column for some time past has been as noticeable as has been the absence of the Camp Grant name from the weekly health reports issued by the Surgeon-General's Office (only those camps having noneffective rates above the average are honored by personal mention in that document). The reason for this hesitancy for appearing in print is the same in both cases: every medico here is working, following the example set by our division surgeon, Lieut.-Col. James M. Phalen, M. C.

DISEASE INCIDENCE

The brand of health exhibited in this cantonment is excellent. A few cases of measles are spotted here and there, but *the main supply is becoming exhausted rapidly. Two different* grades of measles have been appraised by the contagious service; the original, one and only genuine brand, introduced to the trade by the first increments of the draft, ran a very mild course; while *the secondary grade, imported from the* Columbus and Jefferson Barracks, was somewhat more severe in its character. Neither, however, was productive of sequelae of import. There is just about enough scarlet fever on hand to keep one *physician* (grade lieutenant or *captain*) fairly busy *invoicing* it and keeping the stock up to grade. A choice assortment of mumps, right, left and bilateral, flooded our shelves by their numbers (200 in all) for a while but the sanitary train, as usual, played the rôle of capricornus and took them off the books of the base hospital by *opening* a field hospital for the swell-jaws. *One* sample of smallpox is kept on hand, more as a curiosity than anything else. Epidemic meningitis is represented by four cases, a pitifully small stock that probably will not be renewed. As a result of these, the chief of the contagious service is being accused, on all sides, of obtaining money under false pretenses.

remainder of the base hospital is less than comfortably with the usual variety of diseases, medical, surgical and others. Throughout the camp, *bronchitis* seems to be the prevailing of the lesser diseases, although occasional endemics of influenza (so called) and streptococcus sore throat make their appearance.

PROMOTIONS

Promotions form the burning quesion of the day. Lieut.-Col. H. C. Michie, the C. O. *of the base hospital*, had his gold leaves silvered last week and Lieut.-Col. H. O. Scott, D. C., *in charge of dentists*, *sprouted a brand new pair of* silver leaves about a month ago. The field hospital section of the sanitary train is *rejoicing* in the promotion of their ex-director, Major S. J. Kopetzky, M. R. C., to the position of C. O. of the sanitary train. His former place is well filled by Major A. S. Clark, M. R. C., whose field hospital company is now commanded by Capt. J. E. Kellar, Jr., M. R. C.

NEW DRAFT

The arrival of 5,300 new draft men is keeping the surgeons of the divisional organizations fairly busy, although the experience gained by the examination of the original draft has simplified their *problems*. The *necessary* paper work, too, is lessened by the introduction of Form 1010, P. M. G. O., and there is the *promise* that it will be reduced still further.

Eighty-Ninth Division, Camp Funston, Kan.

Feb. 27, 1918.

The last contigent of men of the first draft are now coming into camp in small groups. The system of examining them at present is so far *superior* to the one we were obliged to use in October that it is worthy of mention.

The *men are* taken from the train directly to the examiner's building. Their qualification cards, with regard to fitness for various occupations, are then filled out. The men are then undressed, bathed, and started on their examinations. A series of wooden runways from one set of *special* examiners to another has been built, so that when the men are once started, they cannot possibly go any way but the right way. Thus all *confusion is stopped.*

The examiners are from the various boards of special examiners, thus *avoiding* a *reexamination* of all the command at a larter time by specialists, as was necessary in *the* first *men drafted.*

ORGANIZATION OF THE OFFICE OF THE SURGEON-GENERAL, U. S. ARMY

The following outline gives the personnel of the divisions of the Surgeon-General's Office as shown in the chart on the opposite page: The sections should be read in conjunction with the chart, reading from left to right.

Surgeon-General United States Army.—Major-General W. C. Gorgas: *Attaches:* Col. C. K. Morgan, British Army; Col. C. U. Dercle, French Army; Lieut.-Col. C. L. Furbush.

Chief Assistants to the Surgeon-General.—Brig.-Gen. Charles Richard; Brig.-Gen. Henry P. Birmingham; Col. James W. Van Dusen; Col. James R. Church.

Administration.—Major J. L. Gooch, Jr.; Lieuts. C. H. Wilson; S. P. Davies, L. J. Wyeth, Bernard Gumprecht.

Personnel.—Cols. Robert E. Noble, R. B. Miller, Lieut.-Col. Bert W. Caldwell; Majors Horace D. Arnold, M. R. C.; John S. Coulter, William H. Walsh, M. R. C.; Charles W. Ayres; Captains F. C. Waite, John H. Rose, M. R. C.; Robert F. Miller, John E. Horn; Lieuts. Henry L. Mann, L. B. Schutte.

Finance and Supply.—Cols. Carl R. Darnall; Edwin P. Wolfe; Majors E. R. Gentry, E. C. Jones, J. C. King, D. S. White, V. C.; W. T. Fishleigh; R. A. Wood; Capts. J. B. Copping, A. L. McMurtry, W. G. Stoner, J. C. Scheve, F. W. Lennox, D. M. MacClaire, J. G. Moon, V. C., N. A.; Lieuts. E. P. Turner, J. Van Putten, H. Kelley, E. Thompson, M. B. Bradley.

Sanitation.—Cols. Deane C. Howard, P. M. Ashburn, W. P. Chamberlain, J. W. White; Lieut.-Cols. F. W. Weed, V. C. Vaughan, W. D. Wrightson; Majors E. D. Kremers, James T. B. Bowles; Capts. H. N.
Fuller, E. J. Tucker; Lieuts. E. E. Hume, T. R. Kendall. *Medi-*
tion (Division of Sanitation) Sick and Wounded Records an
of Information.—Lieut.-Col. Albert G. Love; Capt. Robert H.

Training Camps.—Col. Edward L. Munson.

Ambulance Service.—Brig.-Gen. Henry P. Birmingham; C
C. Doyle, J. F. Newport.

Hospitals.—Col. Robert E. Noble; Lieut.-Cols. Charles
L. J. Owen, H. H. Johnson, W. L. Hart, W. H. Smith; M
Kramer, C. L. Brown; Louis B. Baldwin, M. R. C.; Cap
Perry; Lieut. Jens Christensen.

Special Hospitals and P nstruction.—Lieut.
King; Majors James Bordl ; H. E. Mock, M.
H. Hutchings, M. R. C.; P , M. R. C.; Casey
M. R. C.; M. E. Hagerty, B. Price, W. H.
M. Murray, A. C. Monaha os Craig, M. R.
Samuels; Lieuts. William J. C.; W. A. Clark,
Charles Willing, John T. B P. Sullivan,

Surgery.—Col. W. H. M Turnure, M.
A. B. Kanavel, M. R. C.; S. Lieuts. P. F
G. Seelig, M. R. C.; F. W.
T. P. Davison, H. I. Wilson. G. Brack

Military Orthopedic Surg C.; P
David Silver, M. R. C.; Hen M. R. C
nusen, M. R. C.; A. S. Begg, M ; Ho
Emerson, M. R. C.; Capts. S. D.
son, John H. Morse, M. R. C.

Urology.—*Genito-Urinary Diseases:* Dr. G. W. Wende; Capt. Warren Walker, M. R. C. *Venereal Diseases:* Majors William F. Snow, M. R. C;. W. A. Sawyer, M. R. C.; Capts. A. N. Thompson, M. R. C.; A. B. Spingarn; Lieut. Sidney F. Morgan.

Head Surgery.—Col. T. C. Lyster; Lieut.-Col. W. H. Parker, M. C., N. A.; Majors N. M. Black, M. R. C.; H. P. Mosher, M. R. C.; V. P. Blair, M. R. C.; Allen Greenwood, M. R. C.; C. W. Richardson, M. R. C.; *Charles Bagley, Jr.,* M. R. C.; R. H. Ivy, M. R. C.; Capt. H. H. Kerr, M. R. C.

Roentgenology.—Lieut.-Col. A. C. Christie.

General Medicine.—Col. George E. Bushnell. *Gastro-Intestinal.*—Major Seale Harris, M. R. C.

Tuberculosis.—Lieut.-Col. E. H. Bruns; *Capt. W. H. Phares,* S. C., N. A.

Cardiovascular.—Lieut.-Col. Warfield T. *Longcope;* Major A. E. Cohn, M. R. C.; Lieut. F. C. McLean, M. R. C.

Psychiatric.—Lieut.-Col. Pearce Bailey; *Capt. Sanger Brown, 3d,* M. R. C.; Lieut. Roy Haber.

Psychology.—Majors R. M. *Yerkes,* K. T. Waugh; *Capt.* C. S. *Berry;* Lieut. A. S. Otis.

Infectious Diseases and Laboratory.—*Col.* F. F. Russell; *Majors* H. J. Nichols, *E. K. Dunham,* M. R. C.; George Draper, M. R. C.; Capt. J. B. Murphy; Lieut. Harry A. Mankin.

Food and Nutrition.—*Majors John R. Murlin; Caspar W. Miller,* M. R. C.; Capt. W. P. Garrety; Lieut. F. M. Hildebrandt.

Gas Defense.—Brig.-Gen. Henry P. *Birmingham;* Lieut.-Col. Bradley Dewey; *Major Arthur L. Besse; Capts. L. E. Cover,* Frederick A.
Dewey, Franci seman, M. R. C.; Paul V. Hollenbeck, O. R.
Johnson, Willia Kinney, James D. Pilcher, M. R. C.; James H.
Walton; J. W. ; *John O. Woodruff;* Lieut. J. Stanley Babbitt;
Joseph J. Barr

Army Medi Brig.-Gen. William H. Arthur; Lieut.-Cols.
R. Whitme der, H. W. Jones; Major C. G. Snow.

Medical Library.—*Curator:* Col. W. O. Owen.
ibrarian: Co lloch, Jr.

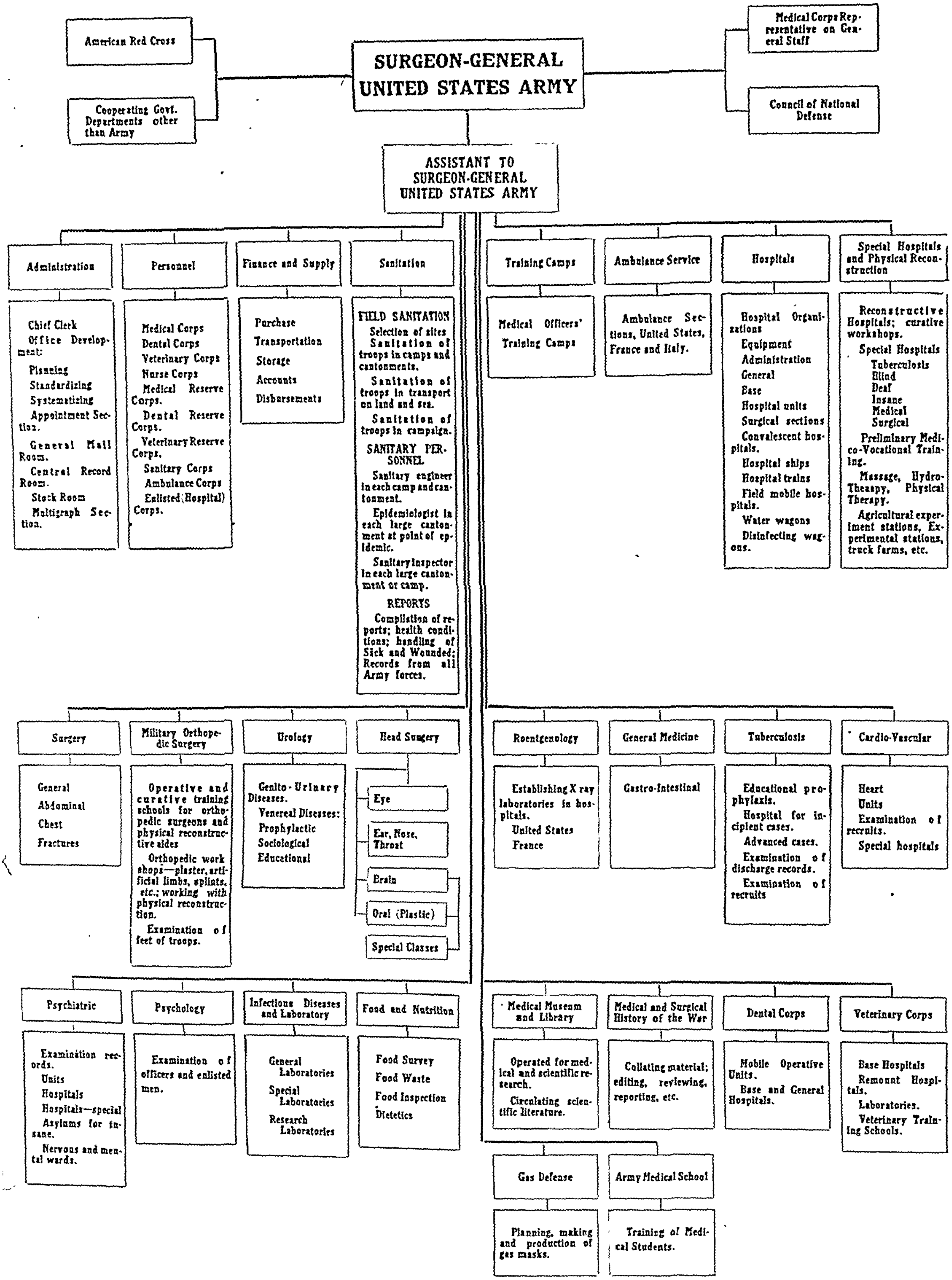
Medical A the War.—Majors F. H. Garrison,
R. C.; Jo R. ut. C. T. Crudgington.

ental C *Logan, J. R. Ames,* D. C.;
s. J. F.

eterinar , Lieut.-Cols. C. J. Marshall,
, N. A Stanclift, V. C, N. A.; Capt.
Horn

fo icated on the chart:
N son; Miss A. W. Goodrich,
rkin; Miss Edith A. Mury.
Meeker, labor; Dr. Davis
industrial and *employment;*
oyment; *Dr. Dean Lewis,*

derson.


American Red Cross
Cooperating Govt. Departments other than Army
SURGEON-GENERAL UNITED STATES ARMY
Medical Corps Representative on General Staff
Council of National Defense
ASSISTANT TO SURGEON-GENERAL UNITED STATES ARMY
Administration
Chief Clerk
Office Development:
Planning
Standardizing
Systematizing
Appointment Section.
General Mail Room.
Central Record Room.
Stock Room
Multigraph Section.
Personnel
Medical Corps
Dental Corps
Veterinary Corps
Nurse Corps
Medical Reserve Corps.
Dental Reserve Corps.
Veterinary Reserve Corps.
Sanitary Corps
Ambulance Corps
Enlisted (Hospital) Corps.
Finance and Supply
Purchase
Transportation
Storage
Accounts
Disbursements
Sanitation
FIELD SANITATION
Selection of sites
Sanitation of troops in camps and cantonments.
Sanitation of troops in transport on land and sea.
Sanitation of troops in campaign.
SANITARY PERSONNEL
Sanitary engineer in each camp and cantonment.
Epidemiologist in each large cantonment at point of epidemic.
Sanitary inspector in each large cantonment or camp.
REPORTS
Compilation of reports; health conditions; handling of Sick and Wounded; Records from all Army forces.
Training Camps
Medical Officers' Training Camps
Ambulance Service
Ambulance Sections, United States, France and Italy.
Hospitals
Hospital Organizations
Equipment
Administration
General
Base
Hospital units
Surgical sections
Convalescent hospitals.
Hospital ships
Hospital trains
Field mobile hospitals.
Water wagons
Disinfecting wagons.
Special Hospitals and Physical Reconstruction
Reconstructive Hospitals; curative workshops.
Special Hospitals
Tuberculosis
Blind
Deaf
Insane
Medical
Surgical
Preliminary Medico-Vocational Training.
Massage, Hydro-Therapy, Physical Therapy.
Agricultural experiment stations, Experimental stations, truck farms, etc.
Surgery
General
Abdominal
Chest
Fractures
Military Orthopedic Surgery
Operative and curative training schools for orthopedic surgeons and physical reconstruction aides
Orthopedic work shops—plaster, artificial limbs, splints, etc.; working with physical reconstruction.
Examination of feet of troops.
Urology
Genito-Urinary Diseases.
Venereal Diseases:
Prophylactic
Sociological
Educational
Head Surgery
Eye
Ear, Nose, Throat
Brain
Oral (Plastic)
Special Classes
Roentgenology
Establishing X ray laboratories in hospitals.
United States
France
General Medicine
Gastro-Intestinal
Tuberculosis
Educational prophylaxis.
Hospital for incipient cases.
Advanced cases.
Examination of discharge records.
Examination of recruits
Cardio-Vascular
Heart
Units
Examination of recruits.
Special hospitals
Psychiatric
Examination records.
Units
Hospitals
Hospitals—special
Asylums for insane.
Nervous and mental wards.
Psychology
Examination of officers and enlisted men.
Infectious Diseases and Laboratory
General Laboratories
Special Laboratories
Research Laboratories
Food and Nutrition
Food Survey
Food Waste
Food Inspection
Dietetics
Medical Museum and Library
Operated for medical and scientific research.
Circulating scientific literature.
Medical and Surgical History of the War
Collating material; editing, reviewing, reporting, etc.
Dental Corps
Mobile Operative Units.
Base and General Hospitals.
Veterinary Corps
Base Hospitals
Remount Hospitals.
Laboratories.
Veterinary Training Schools.
Gas Defense
Planning, making and production of gas masks.
Army Medical School
Training of Medical Students.

ORGANIZATION OF THE OFFICE OF THE SURGEON-GENERAL, UNITED STATES ARMY, 1918

National Research Council

Following is an outline of the organization of the division of medicine and related sciences in the department of science and research of the National Research Council:

I. DIVISION OF MEDICINE AND RELATED SCIENCES

Chairman, Richard M. Pearce (National Research Council), 1023 16th St., N. W., Washington, D. C.

Vice Chairman, Major Robert M. Yerkes, Surgeon-General's Office, Washington, D. C.

Executive Committee.—H. D. Dakin, New York City; C. B. Davenport, *Cold Spring Harbor*, L. I., N. Y.; Major Simon Flexner, Rockefeller Institute, New York City; W. H. Howell, School of Hygiene, Johns Hopkins University, Baltimore; Major Charles H. Mayo, Rochester, Minn.; Major William J. Mayo, Surgeon-General's Office; Col. F. F. Russell, U. S. Army; E. R. Stitt, U. S. Navy; Major V. C. Vaughan, Surgeon-General's Office, Washington, D. C.; William H. Welch, School of Hygiene, Johns Hopkins University, Baltimore; the chairman and vice chairman, ex officio.

II. COMMITTEES INCLUDED IN MEDICAL DIVISION

1. *Anatomy Committee.*—Chairman, H. H. Donaldson.

2. *Physiology Committee.*—Chairman, W. B. Cannon; vice chairman, and acting chairman, W. H. Howell.

(*a*) Subcommittee for Investigations on the Physiology of Shock.—Chairman, W. B. Cannon.

(*b*) Subcommittee on the Control of Hemorrhage.—Chairman, W. H. Howell.

(*c*) Subcommittee on Solutions adopted for Transfusion after Hemorrhage.—Chairman, L. J. Henderson.

(*d*) Subcommittee on Fatigue in Industrial Pursuits.—Chairman, Frederick S. Lee.

3. *Committee on Medicine and Hygiene.*—Chairman, Victor C. Vaughan.

(*a*) Subcommittee on Psychiatry.—Chairman, Stewart Paton.

4. *Psychology Committee.*—Chairman, Robert M. Yerkes.

(*a*) Subcommittee on Methods for the Psychological Examination of Recruits.—Chairman, Robert M. Yerkes.

(*b*) Subcommittee on Tests of Special Skill.—Chairman, Edward L. Thorndike.

(*c*) Subcommittee on Problems of Aviation, Including the Examination of Aviation Recruits.—Chairman, Edward L. Thorndike.

(*d*) Subcommittee on Incapacity, Reeducation and Vocational Training.—Chairman, Shepherd I. Franz.

(*e*) Subcommittee on Visual Problems.—Chairman, Raymond Dodge.

5. *Committee on Anthropology.*—Chairman, William H. Holmes; vice chairman, C. B. Davenport.

6. *Zoology Committee.*—Chairman, E. G. Conklin.

(*a*) Subcommittee on Medical Zoology, with groups representing (1) entomology, (2) helminthology, (3) protozoology.

III. COOPERATING COMMITTEES

(Now existing in the Council)

1. *Chemistry.*—Chairman, M. T. Bogert.

(*a*) Subcommittee on Biochemistry.—Chairman, Frank P. Underhill.

(*b*) Subcommittee on Pharmaceutical Chemistry.—Chairman, Frederick B. Power.

2. *Food Committee.*—Chairman, A. E. Taylor.

3. *Advisory Committee on Toxicity of Preserved Foods.*—Chairman, J. J. Abel.

IV. PURPOSE

To concentrate in Washington a comparatively small body of men representing the existing committees, and thus provide for effective cooperation in the rapid organization of medical research as an aid to the solution of urgent military problems.

V. FIELD

Medicine, surgery, hygiene, physiology, anatomy, psychology, psychiatry, physical anthropology, and closely related subjects.

VI. METHODS

1. To cooperate closely with the Surgeon-General of the Army (through Colonel Russell) and of the Navy (through Dr. Stitt) in determining urgent problems, and to enlist the aid of civilian laboratories in the solution of these problems.

2. To assist the Surgeon-Generals of the Army and Navy in procuring trained investigators to enter the respective services as contract surgeons to undertake special field investigations during short periods of time.

3. To send, if it is considered advisable, individuals to England, France and Italy to determine the urgent problems which should be taken up without loss of time in civilian laboratories in this country.

4. To invite, if it is considered necessary, commissions or individuals from England, France and Italy to this country to advise with the Medical Division of the National Research Council.

5. To maintain correspondence with prominent medical investigators in the American Expeditionary Forces and in civilian laboratories in France, England and Italy, and thus obtain reports of the important fields of research, the character of the work in progress, and the needs of the workers.

6. To establish relations with and, if agreeable to them, to cooperate with research organizations abroad, as (*a*) British Medical Research Committee, (*b*) the Research Society recently organized in France by medical officers of American, French and British forces, and (*c*) the Committee on Medical Research of the American Red Cross in France, etc.

7. To obtain reports of all medical research organizations in this country dealing with war problems, and of individuals engaged in the investigation of war problems.

8. To maintain a bureau for the dissemination of up-to-date bibliographies of all forms of medical research bearing on war problems.

9. (*a*) Prepare lists of individuals and laboratories equipped and ready to undertake research at short notice.

(*b*) Prepare lists of individuals who will hold themselves in readiness to move from laboratory to laboratory to work for shorter or longer periods on special or emergency problems or to augment existing laboratory staffs in a group of selected laboratories.

10. To hold conferences from time to time in Washington or other central city for discussion of important research problems and methods of attack.

11. To hold military medical meetings from time to time in the neighborhood of large cantonments, for the discussion of medical problems by military and civilian physicians.

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," issue of February 9: *To New York City* for intensive training in his specialty Lieut. WINFRED OVERHOLSER, Wellesley Hills. The remainder of the order does not apply to Lieutenant Overholser.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Logan, and *Ellington Field*, Houston, Texas, *Love Field* and *Concentration Camp*, Dallas, Texas, *Call Field*, Wichita Falls, Texas, and *Rich Field*, Waco, Texas, for sanitary inspection and on completion *to his proper station*, Col. WILLIAM F. LEWIS.

To Newport News, Va., to make sanitary inspection and on completion *to his proper station*, Col. PERCY H. ASHBURN.

To Camp Custer, Battle Creek, Mich. for inspection and on completion *to his proper station*, Lieut.-Col. VICTOR C. VAUGHAN.

To Camp Zachary Taylor, Louisville, Ky., as division surgeon, from Newport News, Lieut.-Col. WILLIAM M. SMART.

To Walter Reed General Hospital for observation and treatment, Lieut.-Col. WILLIAM P. BANTA.

To Wilbur Wright Field, Dayton, Ohio, *Camp Sherman*, Chillicothe, Ohio, School for adjutants, *Ohio State University*, Columbus, Ohio, and *Columbus Barracks, Ohio*, for sanitary inspections and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

To Camp McArthur, Waco, Texas, for duty, from Camp Lee, Major EDWARDS C. REGISTER.

To Camp Upton, L. I., N. Y., as camp sanitary inspector, from Camp Upton, Major ALVIN W. SCHOENLEBER.

To Camp Wadsworth, Spartanburg, S. C., for inspection and on completion *to Camp Greene*, Charlotte, N. C., from Camp Greene, Major CONDON C. McCORNACK.

To Cape May, N. J., for duty, from Newport News, Major JAMES S. FOX.

To Charleston, S. C., for investigation and on completion *to his proper station*, Major WILLIAM L. HART.

To Fort Riley as commanding officer, from Fort Leavenworth, Major FRANK H. CHILTON.

To Markleton, Pa., for duty, from the Surgeon-General's Office, Major JOHN C. SKINNER.

To Washington, D. C., from Camp Fremont, Major CLARENCE R. BELL.

To Asheville, N. C., for duty, from Fort Sam Houston, Lieut. EDWARD A. NOYES.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Camp Meade, Lieut. KARL F. KOSMODEL.

To Camp Dodge, Des Moines, Ia., as orthopedic surgeon, from Army Medical School, Lieut. FRANK L. COLE.

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Camp Devens, Lieut. ALBERT W. GREENWELL.

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. EDWIN H. ROBERTS.

To Fort Oglethorpe for instruction, Lieut. FREDERICK T. HILL.

To New York City, Bellevue Hospital, for instruction and on completion *to his proper station*, from Camp Sevier, Lieut. BEN M. MERIWETHER.

To Philadelphia, Pa., University Hospital, for instruction and on completion *to his proper station*, from Camp Wadsworth, Lieuts. HENRY B. SMITH, WALTER C. TILDEN.

The following officers of the Medical Reserve Corps who have passed the preliminary examination for appointment in the Medical Corps will proceed to the Army Medical School for the required course of instruction: Lieuts. JOHN W. BILLINGSLEY, THOMAS S. McCLANAHAN.

The resignation of Lieut. ANDREW J. HARNESS is accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Greene, Charlotte, N. C., for duty, from Fort Moultrie, Lieut. RAYFORD HODGES, Woodville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieuts. ROBBINS NETTLES, Belle Ellen; PERCY B. SKINNER, Belleville; SAMUEL C. TATUM, Center; WILLIAM E. BROUGHTON, Perdue Hill.

To Camp Sheridan, Montgomery, Ala., as orthopedic surgeon, from New York City, Lieut. DAVID RAMSEY, Pine Apple.

To Camp Sherman, Chillicothe, Ohio, for temporary duty, Lieut. GROVER E. MURPHY, Birmingham.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. RUFUS A. CULPEPPER, Cullman.

To Fort Oglethorpe, Provisional Base Hospital, Lieut. JAMES E. BLAYDES, Bessemer.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Camp Logan,* Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. CARL A. HARRIS, Bessemer.

To Newport News, Va., for duty, from Camp Gordon, Major EUGENE DU BOSE BONDURANT, Mobile.

To Pittsburgh, Pa., for instruction and on completion *to Camp Lee,* Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. JAMES H. BLUE, Bessemer; on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. JAMES A. CAMPBELL, Atmore.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. JOHN H. HAYS, Bessemer; from Fort Oglethorpe, Lieut. GILBERT A. RHODES, Troy.

To his home and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. JESSE F. BRYARS, Eliska.

Arizona

To Fort Riley for instruction, from Nogales, Ariz., Capt. CHARLES FORD, Nogales.

Arkansas

To Fort Omaha, Nebr., as gas instructor, from Camp Doniphan, Lieut. MATT F. HOUSTON, Clarendon.

To New York City, Bellevue Hospital, for instruction, and on completion *to Hoboken, N. J.,* for temporary duty, from Fort Oglethorpe, Lieut. ARTHUR F. HOGE, Fort Smith.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* from Fort Oglethorpe, Lieuts. RAPHAEL W. STEELE, Gentry; ARLEY D. CATHEY, Wilton.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. MAURICE F. LAUTMAN, Hot Springs.

To his home and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. SHELBY A. TURNER, Haber Springs.

California

To Alcatras, Calif., U. S. Disciplinary Barracks, for duty, Capt. DANIEL W. HUMFREVILLE, Los Angeles.

To Camp Cody, Deming, N. Mex., base hospital, Lieuts. HARVEY P. CHARLES, Berkeley; LLOYD R. MACE, Hollywood.

To Camp Kearny, Linda Vista, Calif., base hospital, Lieut. JOHN H. BREYER, Pasadena. For duty, Lieut. ALVA F. MAINE, Oakland.

To Camp Lewis, American Lake, Wash., as orthopedic surgeon, Capt. JOHN CARLING, Los Angeles.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Riley, Lieut. RAY A. CARTER, Los Angeles.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Taylor,* Louisville, Ky., base hospital, from Fort Riley, Lieut. JOHN C. IRWIN, Los Angeles.

To Fort Mason, Calif., for duty, Lieuts. HOMER C. SEAVER, Pomona; HOWARD W. FLEMING, San Francisco.

To Fort Riley, for instruction, Lieut. JOSEPH SAYLIN, San Gabriel.

To Los Angeles, Calif., for instruction, Lieut. JOSEPH J. KAVANAGH, Los Angeles.

To report to the Commanding General, Western Department, for assignment to duty, Capt. JAMES A. JACKSON, San Diego; from Fort Douglas, Capt. DAVID B. FIELDS, Weaverville. For assignment to duty, Lieut. LEO V. ROSENTHAL, Duarte.

To Rockefeller Institute for instruction, and on completion *to Walter Reed General Hospital,* for temporary duty, from Fort Oglethorpe, Major ALVIN POWELL, Oakland.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Fort Snelling, Capt. WALTER S. JOHNSON, San Francisco.

Colorado

To Camp Kearny, Linda Vista, Calif., base hospital, Capt. LEWIS M. VAN METER, Denver.

To Fort Logan, Colo., for duty, Lieut. NICHOLAS A. WOOD, Denver.

To Fort Riley for instruction, Capt. THOMAS A. STODDARD, Pueblo.

To New Haven, Conn., as commanding officer of the U. S. Army General Hospital, from Washington, D. C., Major ALEXIUS M. FORSTER, Colorado Springs. For duty, from Camp Gordon, Capt. WILL H. SWAN, Colorado Springs.

Connecticut

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. HERMAN M. HURWITZ, Hartford; from Camp McClellan, Lieut. LAVERNE HOLMES, Manchester.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Harvard Medical School, Lieut. HAROLD L. BURR, Middletown.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. EDWARD J. GODFREY, Waterbury.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. WILLIAM T. DRISCOLL, Norwich.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. WILLIAM F. COLLINS, New Haven.

To Fort Adams, R. I., for duty, Lieut. NAPOLEON B. LEWIS, Norwich.

To Fort Oglethorpe for instruction, Lieut. EDWARD B. ALLEN, South Manchester.

District of Columbia

To Fort Oglethorpe for instruction, from New York City, Lieut. RALPH H. DAVIS, Washington; from Philadelphia, Lieut. MARTIN H. SPELLMAN, Washington.

To Pittsburgh, Pa., for instruction, and on completion to Camp Devens, Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. CHARLES F. BOVE, Washington.

To Rockefeller Institute for instruction, from Fort Oglethorpe, Lieut. JAMES A. CAHILL, Jr., Washington.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Army Medical School, Lieut. JOHN A. TALBOTT, Washington.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. EDWIN M. HASBROUCK, Washington.

Florida

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Capt. JOHN W. ALSOBROCK, Plant City.

To Cincinnati, Ohio, for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. HENRY C. DOZIER, Ocala.

To Fort Oglethorpe for instruction, Lieut. LELAND F. CARLTON, Tampa.

To New Haven, Conn., U. S. Army General Hospital, from Fort Oglethorpe, Lieut. HARVEY O. BYRD, Tribly.

To New York City, Roosevelt Hospital, for instruction, and on completion *to Fort Myer, Va.,* for temporary duty, Lieut. JACOB J. SPENCER, St. Augustine.

To the inactive list of the Medical Reserve Corps, Lieut. WILLIAM E. SCHNAUSS, Jacksonville.

To their homes and honorably discharged, Lieut. GROVER G. HARDIE, Fort Pierce. On account of physical disability existing prior to entrance into the service, from Fort Oglethorpe, Lieut. HENDLEY F. HORNE, Jacksonville. On account of physical disability incident to the service, Lieut. THOMAS E. BLACKBURN, Swainsboro.

Georgia

To Camp Gordon, Atlanta, Ga., for temporary duty, from Camp Gordon, Lieut. MURDOCK S. SQUEN, Atlanta.

To Camp A. A. Humphries, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. CLARENCE G. COX, Ellijay.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. EARL E. PATE, Macon.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. JESSE L. MEEKS, Atlanta.

To Fort Dade, Fla., for duty, Capt. DANIEL B. EDWARDS, Savannah.

To Fort Oglethorpe, Provisional Base Hospital, Capt. ROBERT H. STANLEY, Augusta. For instruction, from Philadelphia Lieut. KENNETH S. HUNT, Milner.

To Rockefeller Institute, N. Y., for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. CLEO D. WILDER, Atlanta; from Camp Jackson, Lieut. CHARLES E. LAWRENCE, Atlanta.

To his home and honorably discharged from the Medical Reserve Corps, on account of physical disability existing prior to his entrance into the service, Lieut. GEORGE H. TURNER, Douglasville.

Idaho

To Portland, Ore., for duty, Lieut. JESSE D. LOUIS, St. Anthony.

To Rockefeller Institute for instruction, and on completion *to Army Medical School,* for duty, from Fort Riley, Lieut. GEORGE B. RANDALL, Buhl.

Illinois

To Alexandria, La., for temporary duty, Major WILLIAM R. CUBBINS, Chicago.

To Allentown, Pa., for duty, from Allentown, Lieut. THOMAS A. WAYLAND, Dallas City.

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, Lieuts. RALPH R. McCARTHY, WILLIAM J. RILEY, Chicago.

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. HUBERT F. DUNN, Chicago.

To Camp Beauregard, Alexandria, La., base hospital, Lieuts. GEORGE E. ARZT, HENRY BARANCIK, Chicago; JOEL A. EASTMAN, La Rose; STEPHEN C. BRADLEY, Marshall.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Bowie, Lieut. WALTER W. BOYNE, East St. Louis.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. JESSE R. GERSTLEY, Chicago.

To Camp Doniphan, Fort Sill, Okla., Fort Riley, Kan., Camp Dodge, Des Moines, Ia., and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago.

To Camp Grant, Rockford, Ill., for duty, Lieut. WILLIAM H. GEHL, Chicago.

To Camp Kearny, Linda Vista, Calif., base hospital, from Fort Riley, Capt. FRANK A. PALMER, Morris.

To Camp Logan, Houston, Texas, as assistant to camp surgeon, from Fort Leavenworth, Lieut. MAYER A. NEWHAUSER, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. FRANK BRINCKERHOFF, Florid.

To Camp Pike, Little Rock, Ark., base hospital, Capt. ARTHUR H. CURTIS, Chicago; Lieut. JEFFERSON D. McCULLOUGH, Jr., Aurora; from Philadelphia, Lieut. MANDEL A. I. COHEN, Chicago.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. HOBERT S. McCAUGHEY, Hoopeston.

To Camp Travis, Fort Sam Houston, Texas., for duty, Lieuts. WALTER K. REED, Chicago; ERNEST B. DOWNS, Danville; WILLIAM R. WESENBERG, Mount City; PHILIP HERRIN, Villa Grove.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieuts. RALPH WALDO CARPENTER, CARL FREUND, HARRY KATZ, Chicago; from Camp Taylor, Lieut. WILLIAM H. CREDE, Chicago; from Harvard Medical School, Lieut. TORRENCE REED, Chicago.

To Chicago, Ill., Presbyterian Hospital, for instruction, Capt. DAVID C. STRAUS, Chicago. On completion *to Camp Grant,* base hospital, from Fort Riley, Lieut. HARRY W. KINNE, West Chicago. On completion *to Camp Sherman,* base hospital, from Fort Riley, Lieut. STEPHEN BIEZIS, Chicago. On completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. FLOYD M. CLARK, Chicago. For duty, and on completion *to Camp Dodge,* base hospital, Lieut. ROBERT E. FLANNERY, Chicago.

To Cleveland, Ohio, for instruction, and on completion *to Fort Porter, N. Y.,* for duty, from Fort Riley, Lieuts. FRANK A. ANDERSON, Chicago; HUGH E. COOPER, Peoria.

To Detroit, Mich., Signal Corps Aviation Section, for duty, Lieut. SETH E. GILKEY, Chicago.

To Fort McPherson, Ga., for duty, from Ann Arbor, Major DEAN D. LEWIS, Chicago.

To Fort Oglethorpe for instruction, Capts. THOMAS A. HOGAN, Chicago; WILLIAM W. COLEMAN, Lincoln; Lieuts. G. F. BREWINGTON, JOHN F. GRANT, JOHN H. LUCZAK, CHARLES C. RENTFRO, EDMOND C. ROOS, Chicago; SAMUEL L. STEVENS, Dalton City; ELMER L. CROUCH, Jacksonville; from Harvard Medical School, Lieuts. HARRY J. FORTIN, ROBERT W. KISPERT, HERMAN G. SCHUMM, Chicago; from New York City, Lieut. IRWIN H. CUTLER, VINCENT W. KOCH, Chicago.

To Fort Ontario, N. Y., for temporary duty, from New York City, Lieut. MARCUS H. HOBART, Chicago.

To Fort Riley for instruction, Lieut. TIMOTHY S. HUGGARD, Chicago.

To Hot Springs, Ark., Army and Navy Hospital, from Fort Riley, Capt. GEORGE A. DARMER, Aurora.

To New Orleans, La., Charity Hospital, for instruction and on completion *to Camp McClellan,* from Fort Riley, Lieut. THEODORE F. BUTZOW, Chicago. On completion *to Camp Shelby,* base hospital, from Fort Riley, Lieut. BERNARD J. BOLKA Chicago.

To Pittsburgh, Pa., for instruction, and on completion to Camp Grant, base hospital, from Cornell Medical College, Capt. CLARENCE W. GEYER, Aurora.

To Rockefeller Institute for instruction, and on completion *to his proper station,* from Camp Jackson, Capt. THOMAS E. CHERRY, Cowden; from Camp Pike, Capt. CHARLES J. POOLE, Mt. Vernon. For instruction, from Fort Oglethorpe, Lieut. PIERRE A. STEELE, Chicago. For instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Army Medical School Lieut. PATRICK J. GRIFFIN, Chicago.

To St. Louis, Mo., Washington University, for instruction in urology and Dermatology, Lieut. EMER L. CARTWRIGHT, Chicago; from Fort Riley, Lieut. GEORGE W. BOWMAN, Alsey.

To his home and to the inactive list, from Fort Riley, Lieut. EARL WILLIAM GILROY, Chicago.

To their homes and honorably discharged, Lieuts. WILLIAM F. PETERSON, Chicago; EVANDER D. TAYLOR, Moline.

Indiana

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. RUSSELL A. GILMORE, Michigan City.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. EDWARD K. Newton, Whiting.

To Camp Jackson, Columbia, S. C., base hospital, Lieuts. EARL H. HARE, WILLIAM WISE, Indianapolis; CHARLES E. WOODCOCK, Whiteland.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. ROBERT E. REPASS, Indianapolis.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. GLEN D. LARRISON, Brook.

To Fort Oglethorpe for instruction, Capt. SAMUEL G. JUMP, Muncie; from Camp Sherman, Capt. JOSEPH M. GLENN, Vincennes. Provisional base hospital, Capt. FLAVINE J. BECK, Hartsville; Lieut. JOHN E. WHITEHALL, South Bend.

To Fort Riley base hospital, for duty, from Fort Riley, Lieut. BYRL R. KIRKLIN, Muncie.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Upton,* Long Island, N. Y., base hospital, from Fort Oglethorpe, Lieut. HARRY G. IRWIN, Huntertown.

To Rockefeller Institute for instruction in laboratory work, and on comple *to Army Medical School, from Fort Oglethorpe,* Lieuts. OLIVER E. GREIST, Delphi; HERMAN H. GICK, Indianapolis; JOHN S. ROBINSON, Winchester.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. CLAUDE B. NEIDHAMER, Indianapolis.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. ELMER B. MOSER, Windfall.

To his home and honorably discharged, from Fort Oglethorpe, Lieut. ARTHUR C. DOTY, Indianapolis.

Iowa

To Camp Custer, Battle Creek, Mich., for duty, from Fort Oglethorpe, Capt. FRANCIS LA PIANA, Des Moines.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Harvard Medical School, Lieut. GARNETT S. FELT, New Providence.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion to Camp Taylor, from Fort Riley, Lieut. LOUIS B. AMICK, Millersburg.

To Fort Douglas, Utah, as gas instrutor, from Camp Doniphan, Capt. ALBERT E. CONRAD, Decorah.

To Fort Riley for instruction, Lieut. CARL KAIL, Hartford.

To Hoboken, N. J., for duty, from Fort Riley, Capt. ALANSON M. POND, Dubuque.

To New York City, Neurological Institute, for instruction, from Fort Riley, Lieut. ELMER P. WEIH, Clinton.

To Rockefeller Institute for instruction, and on completion to Camp, Lee, base hospital, Lieut. ERWIN J. GOTTSCH, Le Mars.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, Lieut. CHARLES E. MOORE, Newton.

To his home and honorably discharged, Lieut. ROBERT G. HINRICHS, Palmer.

Kansas

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieuts. HAROLD H. THEIS, Chautauqua; CHARLES E. YATES, Vinland.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,* base hospital, from Fort Riley, Lieut. LEO E. HAUGHEY, Concordia.

To Fort Leavenworth, Kan., department laboratory, for duty, from Fort Leavenworth, Lieut. MATHEW H. KEEFER, Kansas City.

To Fort McPherson, Ga., for duty, from Camp Taylor, Lieut. JAMES A. H. WEBB, Stafford.

To Rochester, N. Y., for duty, from Camp Pike, Capt. NEWTON A. SEEHORN, Hutchinson.

To Rock Island, Ill., for duty, from Fort Riley, Lieut. ULYSSES S. BOYER, Ada.

To his home and honorably discharged, Lieut. GEORGE E. KNAPPENBERGER, Mankato.

Kentucky

To Camp MacArthur, Waco, Texas, base hospital, Major CHARLES G. LUCAS, Louisville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. CHARLES V. GIBSON, Barren Fork.

To Camp Upton, L. I., N. Y., as *orthopedic surgeon,* from Harvard Medical School, Lieut. MICHAEL P. LINK, Louisville.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Riley, Lieut. CHARLES M. GARTH, Louisville.

To El Paso, Texas, for duty, from Fort Riley, Lieut. EDMUND R. YOST, Greenville.

To Fort Oglethorpe for instruction, Lieut. JOHN R. HODGES, Baskett.

To Lexington, Ky., to enlist the enlisted personnel and on completion *to the inactive list,* Lieut. GEORGE H. WILSON, Lexington.

To Monagomery, Ala., Signal Corps, Aviation School, Taylor Field, as camp surgeon, from Fort Oglethorpe, Lieut. JOHN A. SNOWDEN, Right Angle.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Camp MacArthur,* base hospital, from Fort Oglethorpe, Lieut. SELMAR F. HAUSER, Covington. On completion *to Camp Shelby,* base hospital, from Fort Oglethorpe, Lieut. CHARLES G. GARR, Lexington.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Sheridan, base hospital, from Fort Oglethorpe, Capt. GUY P. GROGSBY, Louisville. Neurological Institute for intensive training, from Washington, D. C., Lieut. ERMIN L. RAY, Louisville.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Fort Oglethorpe, Lieut. ELMORE S. BACKSMAN, Newport.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. HORACE T. RIVERS, Paducah.

Resignations of Capt. EDWARD DAVENPORT, Hampton, and Lieut. JAMES R. SKINNER, Benton, accepted.

Louisiana

To Bayard, N. M., U. S. Army General Hospital, for observation and treatment, from Jackson Barracks, Capt. WILLIAM H. SEEMANN, New Orleans.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Beauregard, Lieut. DAVID B. DAVIS, Bunkie.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. WALTER R. ABNEY, Lake Arthur.

To Fort Oglethorpe for instruction, Lieuts. ROBERT P. REYMOND, Baton Rouge; RUFUS S. FISHER, Sulphur.

To New Orleans, La., Charity Hospital, for instruction, and on completion to Camp Beauregard, base hospital, from Fort Oglethorpe, Lieut. RALPH P. EVANS, Alexandria.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Sherman,* Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. WALTER B. HUNTER, Shréveport.

To Rochester, N. Y., Rochester, General Hospital, for duty, from Fort Oglethorpe, Lieut. LEWIS H. LEVY, New Orleans.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Camp Sheridan, Lieut. JOSEPH R. D'AUNCY, New Orleans.

To Washington, D. C., for duty, from Army Medical School, Lieut. Abraham Mattes, New Orleans.

Honorably discharged, Lieut. NEELY McC. PALMER, Leesville.

Maine

To Camp Devens, Ayer, Mass., base hospital, from Camp Wadsworth, Lieut. JAMES W. LOUGHLIN, Newcastle.

To Camp Hancock, Augusta, Ga., as orthopedic surgeon, from Harvard Medical School, Lieut. RAYMOND V. BLISS, Bangor.

To Fort Oglethorpe, provisional base hospital, Lieut. LEROY B. SMITH, Winterport.

To Hoboken, N. J., for duty, Lieut. HAROLD R. DEPUE, Princeton.

To Philadelphia, Pa., for instruction in orthopedic surgery, from Army Medical School, Capt. TALCOTT O. VANAMEE, Portland.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* from Fort Oglethorpe, Lieut. HAROLD E. E. STEVENS, Lewiston.

To Washington, D. C., for consultation, and on completion *to his proper station,* from Camp Devens, Major WILLIAM C. PETERS, Bangor.

Maryland

*To Aberdeen, Md., f*or duty, Lieut. JOHN COLLINSON, South River.

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. DuMONT F. ELMENDORF, Baltimore.

To Camp Greene, Charlotte, N. C., for duty, from Fort Moultrie, Lieut. JOSEPH SALAN, Baltimore.

To Camp Meade, Annapolis Junction, Md., with the cardiovascular board examining troops, from Camp Meade, Lieut. HARRY M. STEIN, Baltimore.

To Fort Dade, Fla., for duty, from Fort Oglethorpe, Lieut. HARRY H. WILSON, Baltimore.

To Fort Des Moines, Iowa, for temporary duty, Lieut. EDWARD S. JOHNSON, Baltimore.

To Fort Oglethorpe for instruction, Lieut. GEORGE PETERSON, Wallville. Provisional base hospital, Lieut. GABRIEL RIGAU, Baltimore.

To New York City, Neurological Institute, for intensive training, Lieut. JOHN G. RUNKEL, Catonsville.

To *Rockefeller Institute* for instruction, and on completion *to Camp Meade,* base hospital, from Fort Oglethorpe, Lieut. CLAUDE C. KELLY, Baltimore. On completion *to his proper station,* from Camp Lee, Lieut. WILLIAM R. GERAGHTY, Baltimore.

To his home and honorably discharged, Lieut. WILLIAM E. McCLANAHAN, Baltimore.

Massachusetts

To Army Medical School, Washington, D.C., as orthopedic instructor, Lieut. EDWARD KING, Boston. For instruction in orthopedic surgery, Lieuts. WILLIAM F. COTTING, Boston; CARL BEARSE, Roxbury; HAROLD THOMAS, Wollaston; from Camp McClellan, Lieut. LOUIS I. SKIRBALL, Revere.

To Boston City Hospital, Mass., as military director, Major JOSHUA C. HUBBARD, Boston.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. WILLIAM W. MORRISS, Fall River.

To Camp Logan, Houston, Texas, for duty, from Fort Ethan Allen, Capt. HARRY E. SEARS, Beverly.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. VINCENT J. DI MENTO, Boston.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIAM E. REID, Newton.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. GEORGE H. CROFTON, Worcester.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. RICHARD A. CUNNINGHAM, Boston.

To Fort Ethan Allen, Vt., for duty, from Fort Oglethorpe, Lieut. ALFRED T. DALRYMPLE, Boston.

To Fort Oglethorpe for instruction, Capt. JOHN D. H. WOODWORTH, Boston; Lieuts. CHARLES W. BRESSLER, ALBERT A. PASTENE, HAMILTON C. PERKINS, ISREAL E. RUDMAN, JOHN J. STACK, Boston; AUGUSTUS H. GALVIN, Springfield; from Harvard Medical School, Lieuts. HARRIS E. POWERS, Boston; EARLE E. HUSSEY, Fall River; PATRICK H. O'CONNOR, New Bedford; GEORGE MOSSMAN, Westminster.

To Hoboken, N. J., for duty, Lieut. MORRIS HOFFMAN, Boston; from Fort Oglethorpe, Lieut. CHARLES H. MERRILL, Lynn.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Gordon,* base hospital, from Fort Oglethorpe, Lieut. WILLARD P. STAPLETON, Worcester. On completion *to Camp Jackson,* base hospital, Lieut. DAVID J. McCONNELL, Greenfield.

To Philadelphia, Pa., University of Pennsylvania, for instruction, and on completion *to his proper station,* Major MENDALL EMERSON, Worcester, from Camp Sevier, Lieut. DAVID SUSSLER, Dorchester.

To Rockefeller Institute for instruction, and on completion *to Camp Upton,* base hospital, from Fort Ethan Allen, Capt. HERBERT B. PERRY, Northampton. On completion *to Camp Wheeler,* base hospital, from Fort Oglethorpe, Capt. NATHANIEL R. MASON, Boston. On completion *to Army Medical School,* for duty, from Fort Oglethorpe, Lieut. HORMIDAS CHOQUETTE, New Bedford.

To his home and to the inactive list, from Camp Devens, Major JOSEPH H. PRATT, Boston.

To their homes and honorably discharged, on account of physical disability existing prior to entrance into the service, Lieuts. WILLIAM E. BROWNE, Boston; LUTHER J. SHEPLEY, Fall River; JOHN G. SWEENEY, North Cohasset.

Michigan

To Army Medical School, for instruction in orthopedic surgery, Lieut. ROBERT M. BAKER, Ann Arbor.

To Camp Custer, Battle Creek, Mich., base hospital, from duty as a contract surgeon, at Camp Custer, Capt CHARLES R. SOWDER, Camp Custer. As orthopedic surgeon, from Army Medical School, Lieut. WILLIAM S CONNS, Detroit.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Army Medical School, Lieut. AUGUST E. GEHREKE, Detroit.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. DAMON O. WALTHALL, Ann Arbor.

To Camp Greene, Charlotte, N. C., for duty, from Fort Moultrie, Lieut. JOSEPH G. KNAPP, Wyandotte.

To Camp Hancock, Augusta, Ga., base hospital, from Camp Taylor, Lieut. LELAND H. TOWER, Battle Creek.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. ALGERT H. KROHN, Detroit.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Taylor,* Louisville, Ky., base hospital, Capt. ALBERT E. STOCKLEY, Mesick.

To Fort McHenry, Md., for temporary duty, from Fort Riley, Lieut. EDWIN M. CHAUNCEY, Albion.

To Fort McPherson, Ga., for duty, from Camp Sevier, Lieut. WILLIAM J. ERKENBECK, Detroit.

To Fort Oglethorpe for instruction, Capts. BYRON H. JENNE, GEORGE V. OILL, HERMAN H. RUNO, Detroit; Lieut. HUGH R. HILDEBRANT, Ann Arbor.

To Fort Riley for instruction, Lieut. JOHN L. KELLIHER, Calumet.

To New Haven, Conn., U. S. A. General Hospital, from Fort Oglethorpe, Capt. CHARLES H. MERRILL, Detroit.

To New York City for instruction in orthopedic surgery, from New York City, Capt. EUGENE B. STEBBINS, Ironwood. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieut. LYLE B. KINGERY, Ann Arbor.

To Pittsburgh, Pa., for instruction, and on completion *to Fort McPherson;* for duty, from Fort Oglethorpe, Lieut. WILLIAM Y. KENNEDY, Detroit.

Minnesota

To Cleveland, Ohio, for instruction, and on completion *to Camp Custer,* base hospital, from Fort Riley, Lieut. STEWART H. ANDERSON, Wells.

To Fort McPherson, Ga., for duty, Lieut. SAMUEL D. WEAVER, Rochester.

To Fort Oglethorpe for instruction, from Philadelphia, Lieut. IVER F. SELLESETH, Glenwood.

To Fort Riley for instruction, Lieuts. LAWRENCE J. LEONARD, Minneapolis; WALTER H. HALLORAN, St. Paul; from Fort Logan H. Roots, Lieut. JEAN B. CLAIR, Winstead.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Greene, Lieut. RALPH B. BETTMAN, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. PETER J. BURSHEIM, Lake Benton.

Mississippi

To New Orleans, La., Charity Hospital, for instruction and on completion *to Camp Sheridan,* base hospital, Lieut. PAUL G. GAMBLE, Greenville.

To Rochester, N. Y., Rochester General Hospital, for duty, from Camp Shelby, Lieut. FREDERICK M. COOK, Poplarville.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLEVELAND DAVIS, Morgan City.

Missouri

To Camp Pike, Little Rock, Ark., base hospital, Lieuts. HARVEY P. BOUGHNOU, Kansas City; FRANK L. DARROW, St. Louis.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. CYRUS MALLETTE, Bloodland.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. SIMON W. WOLTZEN, Clinton; Lieut. ROY A. WALTHER, St. Louis.

To Chicago, Ill., Presbyterian Hospital, for instruction and on completion *to Camp Dodge,* Des Moines, Iowa, base hospital, Capt. OWEN W. KRUEGER, Kansas City; Lieut. FINIS C. SUGGETT, Ashland; from Fort Riley, Lieut. FOREST F. FOSTER, Kansas City. On completion *to Camp Custer,* base hospital, from Fort Riley, Lieut. FRED E. GARGATZ, Kearney.

To Fort Bliss, for duty, from Jefferson Barracks, Capt. JOHN D. HESS, Clarkton.

To Fort Leavenworth, Kan., Department Laboratory, for duty, Lieut. LEO H. WALLENDORF, St. Joseph.

To Fort Oglethorpe for instruction, from Philadelphia, Capt. RALPH NIEDRINGHAUS, St. Louis; Lieut. HENRY L. HESS, Kansas City; from Harvard Medical School, Lieut. FRED C. CALLOWAY, Ravanna.

To Fort Riley for instruction, Capts. GEORGE McC. HAMILTON, Coffman; WILLIAM T. ELAN, St. Joseph; Lieut. LESLIE E. DEAN, Marysville.

To Kansas City, Mo., for physical examination to determine his fitness for active service, Capt. JOHN G. HAYDEN, Kansas City.

To New Orleans, Charity Hospital, *for instruction,* and on completion *to Camp McClellan,* Anniston, Ala., base hospital, from Camp Shelby, Lieut. JOHN M. PERRY, Princeton.

To Plainfield, N. J., for inspecting property and on completion *to his proper station,* from Plainfield, Lieut. WILLIAM J. EZICKSON, Webb City.

To St. Louis and *Kansas City, Mo.,* to give instruction and on completion *to his proper station,* Major MILREY P. BLAIR, St. Louis, Washington University, for instruction in urology and dermatology, Capt. ROBERT G. HALL, Fulton.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE C. WILHITE, St. Louis.

Montana

To Portland, Ore., for duty, Capt. EDWIN A. GERHART, Billings.

To Rockefeller Institute for instruction in laboratory work, *and on* completion *to Army Medical School, for* duty Lieut. CARL O. RINDER, Deer Lodge.

Nebraska

To Camp Pike, Little Rock, *Ark.,* base hospital, Lieut. HARRY E. FLANSBURG, Lincoln.

To Cleveland, Ohio, for *instruction,* and on completion *to Camp Sevier,* Greenville, S. C., base hospital, Lieut. JACOB M. ERMAN, Omaha.

To Fort Porter, N. Y., for duty, from Fort Riley, Lieut. OSCAR E. COLEMAN, Ainsworth.

To Fort Riley, for instruction, Lieuts. JOHN S. SIMMS, North Platte; JOSEPH M. CURTIS, *Tecumseh.*

To New York City for instruction *in orthopedic* surgery, from New York City, Capt. CHARLES E. REMY, *Johnstown.*

To Rochester, N. Y., Rochester General Hospital, for duty, from Camp Beauregard, Lieut. DEXTER D. KING, York.

Nevada

To Cleveland, Ohio, for instruction, and on completion *to Camp Custer,* base hospital, from Fort Riley, Capt. CLAUDIUS W. WEST, Elko.

To his home and honorably discharged, Lieut. WILLIAM T. GLEASON, Ely.

New Hampshire

To Army Medical School. Washington. D. C., *for instruction* in orthopedic surgery, Lieut. JAMES B. WOODMAN, Franklin.

To Boston, Mass., General Hospital, for instruction, and *on completion to Camp Jackson,* base hospital, Lieut. PHILIAS A. PION, Concord.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. EARL P. CUSHMAN, Claremont.

New Jersey

To Camp Devens, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Warren, Lieut. SAMUEL R. FAIRCHILD, Penngrove.

To Camp Logan, Houston, Texas, as orthopedic surgeon, *from* Fort Oglethorpe, Lieut. THOMAS W. HARVEY, Jr., *Orange.*

To Cincinnati, Ohio, for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. WILLIAM L. CORNWELL, *Bridgeton.*

To Fort Oglethorpe for instruction, Lieut. BARNEY D. LAVINE, Trenton.

To Hoboken, N. J., for duty, Lieuts. WILLIAM H. McCALLION, Elizabeth; GEORGE S. SPENCE, Leesburg; WALTER B. MOUNT, Montclair; THOMAS V. CONNOLLY, *Paterson;* from Fort Oglethorpe, Lieut. THOMAS CRAVEN, *Atlantic* City.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Fort Oglethorpe* for duty, from Fort Oglethorpe, Lieut. CHARLES B. HARPER, *Trenton.*

To Rochester, N. Y., Rochester *General* Hospital, for duty from Camp *Sheridan* Lieut. HENRY G. SMITH Cedar Grove.

To the inactive list from Camp Sherman, Lieut. CHARLES BROWNE, Princeton.

New Mexico

To Fort Riley for instruction, Lieut. ROLAND R. CROSS, Dulce.

New York

To Allentown, Pa., for duty, Lieut. ELMER E. OWEN, Batavia.

To Army Medical School for instruction, from Camp Custer, Capt. CHARLES E. R. PANNACI, Gloversville. For instruction in orthopedic surgery, Lieuts. CHARLES GOLDMAN, Brooklyn; GEORGE K. BLUE, New York City; from Fort Oglethorpe, Lieut. FRANCIS B. RING, Brooklyn.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Devens,* base hospital, from Fort Oglethorpe, Lieut. JAMES F. DOUGHERTY, Richmond Hill.

To Camp Devens, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort H. G. Wright, Capt. BRUNO S. HOROWICZ, New York City; Lieut. ADELBERT C. ABBOTT, Syracuse; from Fort Warren, Lieuts. HERMAN JUDKOWITZ, Brooklyn; CLYDE DANFORD OATMAN, Poolville.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. SAUL DANSER, Brooklyn; JOHN A. METZEN, Buffalo; WILLIAM FRIEDMAN, GERALD S. SHIBLEY, New York City.

To Camp Grant, Rockford, Ill., as orthopedic surgeons, from Army Medical School, Lieuts. GEORGE J. GANOW, Port Dickinson; ROBERT E. O'ROURKE, New York City.

To Camp Meade, Annapolis *Junction, Md.,* with the cardiovascular board examining troops, *from* Camp Meade, Capt. CHARLES C. O'CONNOR, *Brooklyn.*

To Camp Pike, Little Rock, Ark.; *base hospital,* from Newport News, Capt. JOHN B. BRYNE, Jr., Brooklyn; Lieut. CHARLES PHILLIPS, New York City.

To Camp Sherman, Chillicothe, Ohio, as orthopedic surgeon, from Harvard Medical School, Capt. ALFRED H. PARSONS, Great Neck base hospital, Lieut. THOMAS C. McCOY, New York City. For duty, from Fort Oglethorpe, Lieut. ELBRIDGE A. CARPENTER, New York City.

To Camp Upton, L. I., N. Y., *for* temporary duty, from Camp Sherman, Capt. REUBEN J. HELD, New York City.

To Camp Wadsworth, Spartanburg, S. C., for duty, *Major* GEORGE W. GOLER, Rochester. As *orthopedic surgeon,* from Army Medical School, Lieut. FRANCIS J. A. BENNETT, Auburn.

To Chicago, Ill., School of Plastic and Oral Surgery, Northwestern University *Dental School, for instruction,* from Fort Riley, Capt. MARK H. WARD, Suffern.

To Fort McPherson, Ga., for duty, from Camp Upton, Lieut. HENRY R. KUTIL, New York City.

To Fort Oglethorpe for instruction, Capt. EDWIN H. HALL, Briarcliff Manor; from Camp Dix, Capt. HENRY C. DREW, *Brooklyn.* For instruction, Lieuts. ISIDOR GRAD, Bronx; MERRILL N. FOOTE, HERMAN GROSEMAN, ALFRED H. IASON, MORRIS T. KOVEN, Brooklyn; JOSEPH A. NOWICKI, Buffalo; ALEXANDER ALTSCHUL, DIXON L. AUSTIN, CHARLES M. GRIFFITH, FRANK L. MELENEY, BENJAMIN NOCILLA, HERMAN OSTREWSKY, GEORGE SHEINBERG, New York City; GRADY S. CLINKSCALES, Poughkeepsie; FRED L. RITTER, Pulaski; HERBERT L. KALLET, Syracuse; from Army Medical School, Lieut. JACOB URDANG, Brooklyn; from Harvard Medical School, Lieut. DUDLEY L. MORTON, New York City; from New York City, Lieut. ERNEST S. BULLUCK, New York City; from Philadelphia, Lieuts. ISADORE M. LEAVY, HARRY D. SONNENSCHEIN, New York City. Provisional base hospital, Lieut. ARNOLD SHAMASKIN, New York City.

To Hoboken, N. J., for duty, Lieut. CHARLES A. PERRY, Albany; THOMAS C. McCOY, New York City.

To Lakewood, N. J., and *Belle Meade, N. J., for inspection,* and on completion *to his proper station,* Major RICHARD H. HUTCHINGS, Ogdensburg.

To New Haven, Conn., U. S. Army General Hospital, from Camp Meade, Capt. THOMAS F. ELLIS, Brooklyn.

To New York City for consultation, and on completion *to his proper station,* Major PEARCE BAILEY, New York City. To enlist the additional *personnel* for base hospital, and on completion *to the inactive list* of the Medical Reserve Corps, Major WILLIAM F. HONAN, New York City. For instruction in orthopedic surgery, from Army Medical School, Capt. SURSE J. TAYLOR, Albany; on completion *to his proper station,* from Rochester, Capt. EDWARD T. WENTWORTH, Rochester. *Bellevue Hospital,* for instruction and on completion *to Walter Reed General Hospital,* for temporary duty, Capt. SAMUEL STEWART, Syracuse. On completion *to Williamsbridge,* for temporary duty, Capt. GEORGE F. SAMMIS, Brooklyn. On completion *to Camp Dix, base* hospital, from Fort Oglethorpe, Lieut. ARTHUR C. SMITH, Elmira. *On* completion *to Camp Lee,* base hospital, Lieut. IRVIN J. RUSSELL, Port Jefferson. On completion *to Camp Meade,* base hospital, from Fort Oglethorpe, Lieut. ONSLOW A. GORDON, Brooklyn. On completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Lieut. *FREDERICK* CHRISTOPHER, New York City. As instructor in class of fractures and war surgery, Lieut. EDWARD A. KING, New York City. For duty, and on completion *to Fort McHenry,* from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park. For instruction in orthopedic surgery, from New York City, Lieut. IRA W. LIVERMORE, Gowanda. *Post-Graduate* Medical *School* and Hospital, for instruction in urology and dermatology, Lieuts. BENJAMIN E. CARMEL, Brooklyn; HERMAN GOODMAN, New York City; from Fort Oglethorpe, Lieuts. JOSEPH L. WOZNIAK, *Buffalo;* LEO EDELMAN, CHARLES WOLF, New York City.

To Philadelphia, Pa., for instruction, and on completion *to Camp Lee,* base hospital, from Fort Oglethorpe, Lieut. ARWIN H. MacFARLAND, Rome.

To Pittsburgh, Pa., for instruction, and on completion to Camp Dodge, base hospital, from Fort Oglethorpe, Lieut. JOHN H. REYNOLDS, Brooklyn; on completion *to Fort Oglethorpe* for duty from Fort Oglethorpe, Lieut. LAWRENCE M. BELZER, Buffalo.

To Rochester, N. Y., Rochester General Hospital, for duty, from Fort Oglethorpe, Lieut. BERT G. VOORHEES, Elmira.

To Rockefeller Institute for instruction, and on completion *to his proper station,* from Camp Devens, Major ROBERT W. ANDREWS, Poughkeepsie. For instruction in the serum therapy of pneumonia, and on completion *to his proper station,* from Rochester, Capt. CHARLES I. HINCHER, Rochester. For instruction and on completion to Camp Lee, base hospital, from Fort Oglethorpe, Lieut. BERNARD McD. KRUG, Warwick. On completion *to his proper station,* from Camp Sheridan, Lieut. DORSEY G. TYLER, Brooklyn; *from* Williamsbridge, Lieut. WALTER S. WOODRUFF, Mt. Vernon. On completion to *New York City* for duty, Lieut. RUSTIN McINTOSH, New York City. For instruction in laboratory work, and on *completion to Army Medical School,* for duty, Lieut. FREDERICK D. ZEMAN, New York City; from Camp Beauregard, Lieut. MORRIS MASLON, Glen Falls; from Fort Oglethorpe, Lieuts. EPHRAIM M. BLUE-

STONE, JULIUS PINCUS, FRANK TANNENBAUM, New York City.

To Washington, D. C., in the Surgeon-General's Office, Capt. JOHN E. DOUGHERTY, Brooklyn. For consultation and on completion *to his proper station*, from New York City, Capt. BRAINERD H. WHITBECK, New York City. For duty, from Army Medical School, Lieuts. CYRUS W. CULVER, Lowville; MARTIN F. NOLAN, Tonawanda.

Resignations of Capt. EDGAR S. BULLIS, Glen Falls, and Lieut. DAVID M. KAPLAN, New York City, accepted.

To his home and honorably discharged, Capt. ARTHUR I. BOYER, New York City.

Honorably discharged, Lieut. MALCOLM T. MUNKITTRICK, New York City. On account of physical disability, existing prior to entrance into the service, Lieuts. WILLIAM J. RYAN, Newport; THOMAS J. RYAN, New York City.

North Carolina

To Camp Grant, Rockford, Ill., base hospital, from Camp Hancock, Lieut. JOSEPH W. HOOPER, Wilmington.

To Camp Greene, Charlotte, N. C., as assistant to the camp surgeon, from Fort Oglethorpe, Lieut. DARIUS C. ABSHER, Mt. Airy.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. RALPH C. SADLER, Whiteville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. DONALD M. McINTOSH, Old Fort; Lieut. JAMES W. FARRIOR, Kenansville.

To Fort Oglethorpe for instruction, Lieut. AMZI JEFFERSON ELLINGTON, Raleigh.

To Newport News, Va., for duty, from Camp Beauregard, Major JOHN T. BURRUS, High Point.

To New York City, Post-Graduate School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. JACOB H. ROZELLE, Salisbury.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. DAVID T. LONG, Hurdle Mills.

North Dakota

To Camp Dodge, Des Moines, Ia., for duty, Lieut. JOHN R. MacKENZIE, Carrington.

To Cleveland, Ohio, for instruction, and on completion *to Camp Sheridan*, base hospital, from Fort Riley, Capt. WILLIAM A. GERRISH, Jamestown.

To his home and honorably discharged, Capt. NICHOLAS J. SHIELDS, Wahpeton.

Ohio

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieuts. CLARENCE W. BETZNER, Cincinnati; EDWARD REMY, Jr., Mansfield.

To Chicago, Ill., Presbyterian Hospital, *for instruction*, and on completion *to Camp Taylor*, base hospital, from Fort Riley, Lieut. OLEN E. CHENOWETH, Lima.

To Dayton, Ohio, McCook Field, for duty, from Wilbur Wright Field, Major COURTNEY P. GROVER, National Military Home.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. GEORGE B. FAULDER, Columbus. For instruction, Lieuts. GEO. G. HUNTER, Cincinnati; JOSEPH E. STEPHAN, Jewell; ELLIS D. KACKLEY, Pleasant City; LEWIS R. CARR, Prairie Depot; ROBERT McQ. ANDRE, Waverly; DAVE H. SMELTZER, Youngstown. Provisional base hospital, Lieut. WILLIAM L. LAYPORT, Cincinnati.

To Fort Riley for instruction, from Fort Riley, Lieut. GALE C. GUTHRIE, Uhrichsville.

To Hoboken, N. J., for duty, Lieut. FREDERICK P. PURDY, Killbuck.

To New Haven, Conn., U. S. Army General Hospital, from Fort Oglethorpe, Lieut. CHARLES K. ERVIN, Cincinnati.

To New York City, Roosevelt Hospital, for instruction and on completion *to Camp Lee*, base hospital, from Chickamauga Park, Lieut. CLYDE B. TERWILLEGAR, Milford.

To Philadelphia, Pa., for instruction and on completion *to Camp Sevier*, base hospital, from Fort Oglethorpe, Lieut. CLARK E. SHARP, Chillicothe.

To Rockefeller Institute, for instruction and on completion *to his proper station*, from Fort Oglethorpe, Major WILLIAM H. LEET, Conneaut. For instruction in laboratory work and on completion *to Army Medical School*, for duty, from Army Medical School, Lieut. FREDERICK A. EULER, Cleveland.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. HOMER C. BALLARD, Cleveland.

Oklahoma

To Camp Cody, Deming N. M., base hospital, Lieut. JAMES F. MEANS, Claremore.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieuts. ISAAC W. ROGERS, Kellyville; JAMES O. WAILS, Morris; JAMES B. FERGUSON, Sallisaw.

To Chicago, Ill., Presbyterian Hospital for instruction and *on completion to Camp Doniphan*, base hospital, from Fort Riley, Lieut. CHARLES C. SIMS, Healdton.

To New Orleans, La., Charity Hospital, for instruction and on completion to *Camp Beauregard*, from Fort Riley, Capt. VIRGIL BERRY, Okmulgee.

To Waco, Texas, Rich Field, Signal Corps Aviation School, *for duty*, Lieut. JOSEPH T. CUNTER, Ochelata.

To his home and honorably discharged, Lieut. CHARLES W. BACON, Enid.

Oregon

To Camp Lewis, American Lake, Wash., for temporary duty, Capt. CLAUDE M. PEARCE, Baker.

To New York City, Orthopedic Hospital, for instruction in Orthopedic surgery, from New York City, Capt. JOHN H. BESSON, Portland.

To report by wire to the Commanding General, Western Department, for assignment to duty, Lieuts. PRINCE C. PAGE, Buxton; ERIC J. GAMBEE, Portland; from Fort Douglas, Lieut. JAMES A. BEST, Pendleton

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. HAROLD C. BEAN, Portland.

Pennsylvania

To Army Medical School, Washington, D. C., for duty, Lieut. GEO. L. ARMITAGE, Eddystone. For instruction in orthopedic surgery, from Camp Gordon, Lieut. ALBERT P. BERG, Philadelphia.

To Atlanta, Ga., School of Technology, for duty, Lieut HAROLD P. LANSKE, Allentown

To Camp Custer, Battle Creek, Mich., for duty, from Mineola, Capt. SAMUEL C. SMITH, Hollidaysburg.

To Camp Devens, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis from Fort H. G. Wright, Lieut. HARRISON M. STEWART, Mont Alto.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. THOMAS KLEIN, SIMON S. LEOPOLD, Philadelphia; FRANK GUILLARD, Wells Tannery.

To Camp Dodge, Des Moines, Iowa, as orthopedic surgeon, from Fort Oglethorpe, Lieut. GEORGE H. FAGGART, Philadelphia.

To Camp Meade, Anapolis Junction, Md., base hospital, Lieuts. CHARLES A. FITZGERALD, Clarion; STEPHEN W. NEALON, Latrobe. For duty, from Fort Oglethorpe, Lieut. HOMER G. COLLINS, Meyersdale.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. BENJAMIN A. FRYE, Sharpesville.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, from Army Medical School, Lieut. JAMES C. HARDING, Philadelphia.

To Cleveland, Ohio, for instruction and on completion *to Camp Custer*, base hospital, from Fort Oglethorpe, Lieut. PAUL G. DICK, Connellsville.

To Fort Oglethorpe, for instruction, Capt. RUDOLPH A. CONSTIEN, Ashland; from Camp Sherman, Capt. DANIEL P. RAY, Johnstown. Provisional Base Hospital, Capt. ARTHUR D. SMITH, Philadelphia. For instruction, Lieut. WILLIAM O. DOUGHERTY, Bethlehem; from Harvard Medical School, Lieuts. JOHN H. ALEXANDER, BROWN FULTON, WILLIAM O. MARKELL, Pittsburgh; EDWARD PARDOE, South Fork; from New York City, Lieut. HARRY C. POLLOCK, Wilmerding; from Philadelphia, Lieuts. FRANK P. McCARTHY, Erie; SCOTT A. NORRIS, Homestead; HENRY J. GILES, Pittsburgh; JAMES B. HELLER, Pottsville.

To Fort Sam Houston, Texas, for duty, from duty as a private at Fort Sam Houston, Lieut. CHARLES L. PIPER, McKeesport.

To Hoboken, N. J., for duty, Lieut. CARL H. ROBINSTEEN, Ford City.

To Lakewood, N. Y., for temporary duty, from Camp Sevier, Major EDWARD H. GOODMAN, Philadelphia.

To New Orleans, La., Charity Hospital, *for instruction* and on completion *to Camp Shelby*, base hospital, from Fort Oglethorpe, Lieut. LOUIS F. FALLON, Wayne.

To Newport News, Va., as orthopedic surgeon, from Army Medical School, Capt. GUY C. BOUGHTON, Erie.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Devens*, base hospital, from Fort Oglethorpe, Lieut. JAMES A. MUNSTER, Pittsburgh. On completion *to Camp Upton*, base hospital, from Fort Oglethorpe, Lieut. THOMAS J. McNILIS, Lucerne. On completion *to Camp Zachary Taylor, base hospital*, from Fort Oglethorpe, Lieut. ARCHIE W. DUNN, Willow Grove. On completion *to Fort McPherson*, for duty, from Fort Oglethorpe, Lieut. HOWARD A. McKNIGHT, *Philadelphia. Post-Graduate* Medical School and Hospital, for instruction in urology and dermatology, from Fort Oglethorpe, Lieut. DON D. BROOKS, Connellsville.

To Petersburg, Fla., and *Crystal Beach, Fla.*, to inspect and report upon certain sites and *on completion to his proper station*, Lieut. CHARLES C. GANS, Chambersburg.

To Philadelphia, Pa., base hospital, for duty, from Fort Oglethorpe, Lieut. JAMES C. McCONAUGHEY, Wayne. University Hospital, for instruction and on completion *to Camp Greene*, base hospital, from Fort Oglethorpe, Lieut. EDWIN C. BOYER, Johnstown.

To Pittsburgh, Pa., for instruction and on completion *to Camp Sherman*, base hospital, from Fort Oglethorpe, Lieut ARTHUR D. COWDRICK, Clearfield.

To Rockefeller Institute, for instruction, from Fort Oglethorpe, Lieut. CLAUDE L. BRADFORD, Pittsburgh. *For instruction* in laboratory work and on completion *to Army Medical School*, from Fort Oglethorpe, Lieut. ARTHUR E. SIMONIS, Tremont.

To Washington, D. C., for duty in the Surgeon-General's Office, from Pittsburgh, Major GEORGE C. JOHNSTON, [illegible]. For duty, from Army Medical School, Lieut. SAMUEL B. THOMAS, Waynesboro.

To Williamsbridge, N. Y., for duty, from Fort Oglethorpe, Lieut. JOHN J. KOLSKI, Donora.

To his home and to the inactive list, Lieut. MOSES H. BAKER, Pittsburgh.

To their homes and honorably discharged, Lieuts. CHARLES E. HERMAN, Carnegie; FRANK H. LONG, Coopersburg; CLARENCE

To Fort Riley for instruction, Capts. GEORGE McC. HAMILTON, Coffman; WILLIAM T. ELAN, St. Joseph; Lieut. LESLIE E. DEAN, Marysville.

To Kansas City, Mo., for physical examination *to determine* his fitness for active service, Capt. JOHN G. HAYDEN, Kansas City.

To New Orleans, Charity Hospital, for instruction, and on completion *to Camp McClellan*, Anniston, Ala., base hospital, from Camp Shelby, Lieut. JOHN M. PERRY, Princeton.

To Plainfield, N. J., for inspecting property and on completion *to his proper station*, from Plainfield, Lieut. WILLIAM J. EZICKSON, Webb City.

To St. Louis and *Kansas City, Mo.*, to give instruction and on completion *to his proper station*, Major MILREY P. BLAIR, St. Louis, Washington University, for instruction in urology and dermatology, Capt. ROBERT G. HALL, Fulton.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE C. WILHITE, St. Louis.

Montana

To Portland, Ore., for duty, Capt. EDWIN A. GERHART, Billings.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty Lieut. CARL O. RINDER, Deer Lodge.

Nebraska

To Camp Pike, Little Rock, Ark., base hospital, Lieut. HARRY E. FLANSBURG, Lincoln.

To Cleveland, Ohio, for instruction, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, Lieut. JACOB M. ERMAN, Omaha.

To Fort Porter, N. Y., for duty, from Fort Riley, Lieut. OSCAR E. COLEMAN, Ainsworth.

To Fort Riley, for instruction, Lieuts. JOHN S. SIMMS, North Platte; JOSEPH M. CURTIS, Tecumseh.

To New York City for instruction in orthopedic surgery, from New York City, Capt. CHARLES E. REMY, Johnstown.

To Rochester, N. Y., Rochester General Hospital, for duty, from Camp Beauregard, Lieut. DEXTER D. KING, York.

Nevada

To Cleveland, Ohio, for instruction, and on completion *to Camp Custer*, base hospital, from Fort Riley, Capt. CLAUDIUS W. WEST, Elko.

To his home and honorably discharged, Lieut. WILLIAM T. GLEASON, Ely.

New Hampshire

To Army Medical School, Washington, D. C., for instruction in orthopedic surgery, Lieut. JAMES B. WOODMAN, Franklin.

To Boston, Mass., General Hospital, for instruction, and on completion *to Camp Jackson*, base hospital, Lieut. PHILIAS A. PION, Concord.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. EARL P. CUSHMAN, Claremont.

New Jersey

To Camp Devens, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Warren, Lieut. SAMUEL R. FAIRCHILD, Penngrove.

To Camp Logan, Houston, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. THOMAS W. HARVEY, Jr., Orange.

To Cincinnati, Ohio, for instruction in orthopedic surgery, from Fort Oglethorpe, Capt. WILLIAM L. CORNWELL, Bridgeton.

To Fort Oglethorpe for instruction, Lieut. BARNEY D. LAVINE, Trenton.

To Hoboken, N. J., for duty, Lieuts. WILLIAM H. McCALLION, Elizabeth; GEORGE S. SPENCE, Leesburg; WALTER B. MOUNT, Montclair; THOMAS V. CONNOLLY, Paterson; from Fort Oglethorpe, Lieut. THOMAS CRAVEN, Atlantic City.

To New Orleans, La., Charity Hospital, for instruction, and on completion *to Fort Oglethorpe* for duty, from Fort Oglethorpe, Lieut. CHARLES B. HARPER, Trenton.

To Rochester, N. Y., Rochester General Hospital, for duty from Camp Sheridan Lieut. HENRY G. SMITH Cedar Grove.

To the inactive list from Camp Sherman, Lieut. CHARLES BROWNE, Princeton.

New Mexico

To Fort Riley for instruction, Lieut. ROLAND R. CROSS, Dulce.

New York

To Allentown, Pa., for duty, Lieut. ELMER E. OWEN, Batavia.

To Army Medical School for instruction, from Camp Custer, Capt. CHARLES E. R. PANNACI, Gloversville. For instruction in orthopedic surgery, Lieuts. CHARLES GOLDMAN, Brooklyn; GEORGE K. BLUE, New York City; from Fort Oglethorpe, Lieut. FRANCIS B. RING, Brooklyn.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Devens*, base hospital, from Fort Oglethorpe, Lieut. JAMES F. DOUGHERTY, Richmond Hill.

To Camp Devens, Ayer, Mass., as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort H. G. Wright, Capt. BRUNO S. HOROWICZ, New York City; Lieut. ADELBERT C. ABBOTT, Syracuse; from Fort Warren, Lieuts. HERMAN JUDKOWITZ, Brooklyn; CLYDE DANFORD OATMAN, Poolville.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. SAUL DANSER, Brooklyn; JOHN A. METZEN, Buffalo; WILLIAM FRIEDMAN, GERALD S. SHIBLEY, New York City.

To Camp Grant, Rockford, Ill., as orthopedic surgeons, from Army Medical School, Lieuts. GEORGE J. GANOW, Port Dickinson; ROBERT E. O'ROURKE, New York City.

To Camp Meade, Annapolis Junction, Md., with the cardiovascular board examining troops, from Camp Meade, Capt. CHARLES C. O'CONNOR, Brooklyn.

To Camp Pike, Little Rock, Ark., base hospital, from Newport News, Capt. JOHN B. BRYNE, Jr., Brooklyn; Lieut. CHARLES PHILLIPS, New York City.

To Camp Sherman, Chillicothe, Ohio, as orthopedic surgeon, from Harvard Medical School, Capt. ALFRED H. PARSONS, Great Neck base hospital, Lieut. THOMAS C. McCOY, New York City. For duty, from Fort Oglethorpe, Lieut. ELBRIDGE A. CARPENTER, New York City.

To Camp Upton, L. I., N. Y., for temporary duty, from Camp Sherman, Capt. REUBEN J. HELD, New York City.

To Camp Wadsworth, Spartanburg, S. C., for duty, Major GEORGE W. GOLER, Rochester. As orthopedic surgeon, from Army Medical School, Lieut. FRANCIS J. A. BENNETT, Auburn.

To Chicago, Ill., School of Plastic and Oral Surgery, Northwestern University Dental School, for instruction, from Fort Riley, Capt. MARK H. WARD, Suffern.

To Fort McPherson, Ga., for duty, from Camp Upton, Lieut. HENRY R. KUTIL, New York City.

To Fort Oglethorpe for instruction, Capt. EDWIN H. HALL, Briarcliff Manor; from Camp Dix, Capt. HENRY C. DREW, Brooklyn. For instruction, Lieuts. ISIDOR GRAD, Bronx; MERRILL N. FOOTE, HERMAN GROSEMAN, ALFRED H. IASON, MORRIS T. KOVEN, Brooklyn; JOSEPH A. NOWICKI, Buffalo; ALEXANDER ALTSCHUL, DIXON L. AUSTIN, CHARLES M. GRIFFITH, FRANK L. MELENEY, BENJAMIN NOCILLA, HERMAN OSTREWSKY, GEORGE SHEINBERG, New York City; GRADY S. CLINKSCALES, Poughkeepsie; FRED L. RITTER, Pulaski; HERBERT L. KALLET, Syracuse; from Army Medical School, Lieut. JACOB URDANG, Brooklyn; from Harvard Medical School, Lieut. DUDLEY L. MORTON, New York City; from New York City, Lieut. ERNEST S. BULLUCK, New York City; from Philadelphia, Lieuts. ISADORE M. LEAVY, HARRY D. SONNENSCHEIN, New York City. Provisional base hospital, Lieut. ARNOLD SHAMASKIN, New York City.

To Hoboken, N. J., for duty, Lieut. CHARLES A. PERRY, Albany; THOMAS C. McCOY, New York City.

To Lakewood, N. J., and *Belle Meade, N. J.*, for inspection, and on completion *to his proper station*, Major RICHARD H. HUTCHINGS, Ogdensburg.

To New Haven, Conn., U. S. Army General Hospital, from Camp Meade, Capt. THOMAS F. ELLIS, Brooklyn.

To New York City for consultation, and on completion *to his proper station*, Major PEARCE BAILEY, New York City. To enlist the additional personnel for base hospital, and on completion *to the inactive list* of the Medical Reserve Corps, Major WILLIAM F. HONAN, New York City. For instruction in orthopedic surgery, from Army Medical School, Capt. SURSE J. TAYLOR, Albany; on completion *to his proper station*, from Rochester, Capt. EDWARD T. WENTWORTH, Rochester. Bellevue Hospital, for instruction and on completion *to Walter Reed General Hospital*, for temporary duty, Capt. SAMUEL STEWART, Syracuse. On completion *to Williamsbridge*, for temporary duty, Capt. GEORGE F. SAMMIS, Brooklyn. On completion *to Camp Dix*, base hospital, from Fort Oglethorpe, Lieut. ARTHUR C. SMITH, Elmira. On completion *to Camp Lee*, base hospital, Lieut. IRVIN J. RUSSELL, Port Jefferson. On completion *to Camp Meade*, base hospital, from Fort Oglethorpe, Lieut. ONSLOW A. GORDON, Brooklyn. On completion *to Camp Upton*, base hospital, from Fort Oglethorpe, Lieut. FREDERICK CHRISTOPHER, New York City. As instructor in class of fractures and war surgery, Lieut. EDWARD A. KING, New York City. For duty, and on completion *to Fort McHenry*, from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park. For instruction in orthopedic surgery, from New York City, Lieut. IRA W. LIVERMORE, Gowanda. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieuts. BENJAMIN E. CARMEL, Brooklyn; HERMAN GOODMAN, New York City; from Fort Oglethorpe, Lieuts. JOSEPH L. WOZNIAK, Buffalo; LEO EDELMAN, CHARLES WOLF, New York City.

To Philadelphia, Pa., for instruction, and on completion *to Camp Lee*, base hospital, from Fort Oglethorpe, Lieut. ARWIN H. MacFARLAND, Rome.

To Pittsburgh, Pa., for instruction, and on completion to Camp Dodge, base hospital, from Fort Oglethorpe, Lieut. JOHN H. REYNOLDS. Brooklyn; on completion *to Fort Oglethorpe* for duty from Fort Oglethorpe, Lieut. LAWRENCE M. BELZER, Buffalo.

To Rochester, N. Y., Rochester General Hospital, for duty, from Fort Oglethorpe, Lieut. BERT G. VOORHEES, Elmira.

To Rockefeller Institute for instruction, and on completion *to his proper station*, from Camp Devens, Major ROBERT W. ANDREWS, Poughkeepsie. For instruction in the serum therapy of pneumonia, and on completion *to his proper station*, from Rochester, Capt. CHARLES I. HINCHER, Rochester. For instruction and on completion to Camp Lee, base hospital, from Fort Oglethorpe, Lieut. BERNARD McD. KRUG, Warwick. On completion *to his proper station*, from Camp Sheridan, Lieut. DORSEY G. TYLER, Brooklyn; from Williamsbridge, Lieut. WALTER S. WOODRUFF, Mt. Vernon. On completion *to New York City* for duty, Lieut. RUSTIN McINTOSH, New York City. For instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. FREDERICK D. ZEMAN, New York City; from Camp Beauregard, Lieut. MORRIS MASLON, Glen Falls; from Fort Oglethorpe, Lieuts. EPHRAIM M. BLUE-

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Sanitary Inspection Discontinued.—The active work of sanitary inspection in Little Rock which had been carried on under the supervision of the United States Public Health Service was discontinued, January 23, on account of the failure of the city council to appropriate funds for the continuance of the work.

Personal.—Dr. Frederic C. Rowell has been appointed health officer of Pine Bluff.——Dr. Leon M. Mooney, Mountain Home, fell while hunting, February 2, fracturing his right arm.——Dr. George M. Converse, United States Public Health Service, was the guest of honor at the meeting of the Lions' Club, held at Little Rock, January 21.

Isolation Hospital for Little Rock.—As the result of a conference between the board of trustees of the University of Arkansas with the state and city officials, it is announced that three wards of the old medical school building in Little Rock will be equipped as an isolation hospital. The state has agreed to appropriate $6,000 for the support of this institution.

Meningitis.—February 18, it was reported from Little Rock that the meningitis situation in that city was well in hand, according to a report given by Dr. Claude C. Pierce, San Francisco, of the United States Public Health Service, who had been sent to investigate this epidemic. There had been twenty-nine cases since November 26, only three of which were secondary. All druggists, it was said, had been asked to cooperate by not selling any "patent medicines" for the cure of any infectious diseases.

INDIANA

Unit Assembled.—Hospital Unit I from Madison County, commanded by Major John B. Fattic, Anderson, with eleven medical officers and forty-eight enlisted men has been mobilized at Fort McPherson, Atlanta, Ga.

New Antituberculosis Officers.—At the fifth annual meeting of the Marion County Medical Society for the Prevention of Tuberculosis, held in Indianapolis, February 21, a report of Sunnyside Sanatorium was presented and an outline of the activities for the coming year was given by Dr. William F. King, Indianapolis, assistant secretary of the state board of health. Dr. Alfred Henry, Indianapolis, was reelected president, and Drs. Charles J. Kneer, Oaklandon, George H. McCaskey, West Newton; Edward M. Amos, Indianapolis; Arthur L. Barnes, Southport, Ernest O. Asher, New Augusta; Jeremiah A. Swails, Action; Charles J. McIntosh, Indianapolis; Mrs. J. C. McCain, Ben Davis, and Mrs. F. W. Wiese, Cumberland, were elected township vice presidents.

ILLINOIS

Chicago

Meeting of Internists.—At the twenty-second regular meeting of the Chicago Society of Internal Medicine held, February 25, the essayist was Dr. H. Gideon Wells, who spoke on "The Medical Aspect of Plague and Famine as Seen in Russia."

Personal.—Dr. Harry D. Orr, who has been director of ambulance trains at Camp Logan, Houston, Texas, has been promoted to the rank of lieutenant-colonel, M. C., N. A., and placed in command of the One Hundred and Eighth Sanitary Train.——Major Robert J. Gay has been promoted from the command of Field Hospital No. 131 to the directorship of ambulance trains.——Major Daniel W. Rogers, surgeon of the One Hundred and Thirty-Fourth Illinois Field Artillery, has been relieved from command of ambulance trains and placed in charge of Field Hospital No. 131.——Dr. Clement J. Cullen, Oak Park, suffered a cerebral hemorrhage while in his office, February 22, and is reported to be in a critical condition.——Dr. Brown Pusey was operated on recently at St. Luke's Hospital for gallstones, and is convalescing uneventfully.

MARYLAND

Appropriation for Psychopathic Building.—The governor has approved of an appropriation of $80,000 for the equipment of the Spring Grove psychopathic building at Catonsville, which has been offered to the government to be used for the care of soldiers suffering from nervous and mental disorders.

Billings in Baltimore.—Major Frank Billings, Chicago, medical aid to Provost-Marshal-General Crowder, addressed the medical advisory boards, local boards and district boards of the state at Osler Hall, Baltimore, February 12, and explained the new regulations for the physical examination of registrants. The address was followed by a conference.

Additional Patients at Fort McHenry.—Two hundred and forty-nine more patients have arrived at the United States Army General Hospital No. 2, at Fort McHenry, Baltimore. Seventeen men are from overseas and the remainder are from northern army camps. None of the men are wounded. They are suffering mainly from heart trouble and, in a large majority of cases, the patients have been in the same condition for years. The new detachment makes a total of 402 patients now under treatment at Fort McHenry.

Mortality from Pneumonia.—The highest mortality from pneumonia in the history of the health department of Baltimore was reported for the week ending February 16, during which there were 78 deaths from the disease. The next highest record was for a week in January, 1916, when 73 persons died from pneumonia. Deaths in the city from all causes totaled 317, as compared with 246 in 1917, 207 in 1916, and 190 in 1915. During that week there were reported to the department 112 cases of pneumonia. Of these 65 were lobar and 47 bronchopneumonia.

Meetings.—At a meeting of the Baltimore County Medical Association held at the medical and chirurgical faculty building, Baltimore, February 20, resolutions were passed approving two bills that are pending in Congress, which will increase the rank of the members of the Medical Reserve Corps. After a business session, Dr. John H. Crum of Detroit, Mich., gave an illustrated talk on diphtheria. Dr. J. Percy Wade, Catonsville, is president of the association and Dr. Samuel J. Fort, Catonsville, is secretary.——At a meeting of the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, held, February 26, in Oslear Hall, Baltimore, Major Pearce Bailey, of the Surgeon-General's Office, Washington, D. C., spoke on "Voltaire."

Personal.—Dr. Thomas H. Brayshaw, Glenburnie, Md., one of the best known physicians of Anne Arundel County, is seriously ill at his home, suffering from an attack of pneumonia. His condition is regarded as serious.——Dr. William S. Baer, Baltimore, who went to France last June as a member of the Johns Hopkins Base Hospital Unit, with the rank of major in the Medical Reserve Corps, is soon to be made a lieutenant-colonel of the National Army, according to an announcement recently made at the headquarters of the Army Medical Corps in Washington, D. C.——Dr. John M. T. Finney, head of the Johns Hopkins Base Hospital Unit, now holds the position of medical director, with the rank of lieutenant-colonel.——Dr. Michael J. Egan, of St. Joseph's Hospital, Baltimore, has left for New York, where he will take a three months' training course in neurologic surgery before going to France.——Dr. Kenneth J. McCullough, Baltimore, assistant surgeon at the Sparrows Point plant of the Bethlehem Steel Company, has resigned to accept a position as assistant surgeon of the Atlantic Coast Line. Dr. S. F. Hundley will succeed Dr. McCullough at Sparrows Point.——Dr. Mary F. Sledwick Bailey, Philadelphia, has been appointed an assistant in the bacteriologic laboratory of the Baltimore City Health Department.——Dr. Arthur P. Herring, Baltimore, secretary of the state lunacy commission, has been commissioned a captain in the Medical Reserve Corps and is now stationed at the United States Army General Hospital No. 2 at Fort McHenry, Baltimore, where he is in charge of the psychiatric work.

MINNESOTA

Dr. Rowntree Operated On.—Dr. L. G. Rowntree, the head of the Department of Medicine of the University of Minnesota, was operated on at the Mayo Clinic at Rochester, March 6, the operation revealing a rather serious subacute perforating ulcer of the duodenum, with hemorrhage.

NEW JERSEY

Newark Health Department News.—The monthly bulletin of the health department of Newark for February announces that a narcotic clinic for the study and treatment of drug addicts has been established in the city dispensary, and that a considerable number of such persons have applied for treatment. The general plan of treatment includes rapid reduction in dose, substitution of a milder narcotic, stimulation of cellular activity, dilution of the toxic agents, and elimination, with encouragement.

NEW YORK

Personal.—Major Michael J. Thornton, formerly of Albany, who has been on duty with the British troops for several months, has been transferred to the American forces.——Dr. John H. Hamilton, Albany, has been appointed state epidemiologist of Iowa, succeeding Dr. Mark F. Boyd, resigned.

Naval Hospital at Pelham Bay Park.—A base hospital adjoining the naval encampment at Pelham Bay Park is in the process of construction. The hospital is to be similar to Base Hospital No. 1 on Gun Hill Road, the Bronx, and will accommodate about 2,000 patients. The hospital is to be used as a general hospital for the United States Navy.

Support Owen-Dyer Bill.—The New York State committee of the medical section of the Council of National Defense, of which Dr. George D. Stewart is chairman, is taking active measures to support the legislation recently introduced in Congress aiming to correct the inequitable situation whereby medical officers of the Navy are eligible to more advanced rank that those of the Army, in which a far smaller proportion of medical officers than line officers are eligible for advanced rank. The committee has written a letter to all the medical organizations of the state urging them to send to the New York State senators and representatives in Congress resolutions endorsing this legislation.

State Board of Drug Control.—The Whitney drug addiction committee presented its report to the legislature, March 1, recommending the establishment of a board of drug control within the state department of health. The plan presented provides for the appointment of a drug commissioner with such administrative powers as will enable him in cooperation with the federal internal revenue bureau to utilize as far as possible the information obtained by federal agents and inspectors. The drug commissioner is to have power to make rules and regulations for the control of the drug traffic. Under the plan provision will be made for the registration of all dealers in narcotics, as well as physicians and veterinarians, and for the inspection of all institutions treating drug addicts. According to estimates furnished by the committee, from 2 to 5 per cent. of the population of New York City are drug addicts, and a larger percentage is found in smaller cities and rural communities. The committee has also found that the use of narcotics is greatly on the increase.

New York City

Medical Unit for Palestine.—A gift of $100,000 has been announced by the joint distribution committee of the American Jewish Relief Committee for the medical unit of Hadassah, which will leave for Palestine within a few weeks. The British government will cooperate in assuring a safe and speedy transportation of the medical unit.

Academy Activities.—At a meeting of the New York Academy of Medicine, to be held, March 13, under the auspices of the public health committee, Dr. James Alexander Miller, who has recently returned from France, will deliver a lecture illustrated by lantern slides, on "Health Conditions in France, and America's Effort to Aid Them."

Personal.—Dr. Leo Buerger has been appointed professor of genito-urinary diseases in the New York Polyclinic Medical School and Hospital.——Dr. George Gray Ward, Jr., has been appointed chief surgeon and surgical director of the Woman's Hospital in the State of New York, succeeding Dr. Clement Cleveland, resigned.——Dr. Arthur J. O'Leary has been appointed assistant sanitary superintendent of the department of health for the Bronx.

More Rockefeller Gifts.—At its annual meeting, March 1, the Rockefeller Foundation announced that an additional $187,281 has been appropriated for war work. Of this sum $125,000 is for the purpose of continuing the war demonstration hospital of the Rockefeller Institute, $50,000 is for the medical division of the national research council of the Council of National Defense, and $12,281 for other medical war research and relief work. Among the members of the executive committee for the year 1918 are Drs. George E. Vincent and Simon Flexner. Dr. Hermann M. Biggs was elected a member of the international health board of the foundation.

Diagnostic Laboratories Must Keep Records.—The department of health has adopted regulations relating to the records to be kept by laboratories offering facilities for the diagnosis of contagious diseases. These regulations require that the person in charge of the laboratory shall cause a record to be kept wherein shall be entered the following information: the laboratory number and date of the receipt of every specimen to be tested to determine the presence of communicable disease, and the result of the laboratory test. The department of health may, at its discretion, require every such laboratory to furnish a statistical report covering a stated period and embodying the foregoing specified information.

NORTH CAROLINA

Personal.—Dr. Franklin H. Lackey, Fallston, is reported seriously ill with septicemia at a hospital in Lincolnton.——Dr. May S. Miles, Greensboro, has been elected president of the Guilford County Medical Society.

Physicians Found Guilty of Violating State Law.—It is reported that Drs. William P. S. Webb, Rockingham, and Robert T. Upchurch, Henderson, have been found guilty of violating the state statistics law by failing to report births occurring in their practice.

Unit O to be Equipped.—The Mecklenburg County Medical Society and the local chapter of the American Red Cross have undertaken to raise $15,000 to equip Unit O, which recently left Charlotte in command of Major Addison G. Brenizer, for preliminary training.

Tuberculosis Clinic Opens.—A free tuberculosis clinic was opened at Charlotte at the city auditorium, January 29, under the auspices of the city health department and the United States Public Health Service. Acting Asst. James A. Keiger, of the United States Public Health Service, is in charge of the clinic, which will be open at 2:30 p. m., Tuesdays and Fridays of each week.

Standardization of Hospitals.—A joint session of committees from the Medical Society of the State of North Carolina, and the North Carolina State Nurses' Association met in Greensboro, February 14, to confer on the standardization of the hospitals of the state, and on the possible establishment of a North Carolina Hospital Association as a component of the National Hospital Association. The state society was represented by Dr. Jacob F. Highsmith, Fayetteville; Henry F. Long, Statesville, and Major John T. Burrus, High Point.

OHIO

Hospital Notes.—The Kings Daughters Hospital has been incorporated at Ashland.——Dr. Curtiss Ginn, Dayton, has been named a member of the board of trustees of the Miami Valley Hospital, Dayton, succeeding Dr. Harry E. Palmer.

Medical Building for Columbus.—Drs. William D. Inglis, E. H. Ryan, Charles S. Means and Yeatman Wardlow have taken a lease on the property of Dr. Theodore W. Rankin and will erect on this site a building to contain fourteen suites of offices for physicians and dentists.

New Academy Officers.—At the annual meeting of the Dayton Academy, January 25, it was voted to continue the organization and the following officers were elected: president, Dr. Howard V. Dutrow; vice president, Dr. Rufus C. Pennywitt; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. John D. Fouts.

Dr. King Addresses Academy.—Dr. F. Truby King, president of the Royal New Zealand Society for the Health of Women and Children, spoke at an open meeting of the Academy of Medicine of Cleveland, held in the council chamber of the city hall, February 8, on "The Responsibility of the Municipality for the Welfare of Its Mothers and Children."

New Medical College Building Dedicated.—The new building of the University of Cincinnati College of Medicine was dedicated, February 25, the principal speakers being Major Christian R. Holmes, dean, and Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching. The new medical building was erected and equipped at a total cost of approximately $600,000.

Enlisted Reserve Corps.—Dr. F. C. Waite, Cleveland, has been called to Washington, D. C., to assist Major Horace D. Arnold, M. R. C., in the new division of the Surgeon-General's Office, which is to have charge of the medical, dental and veterinary students who, under the selective service act, have been enlisted in the Medical Reserve Corps and placed on the inactive list, pending the completion of their education. Any student who does not make satisfactory progress will be dropped from the reserve list and become eligible for active service. The division is also to have oversight of the schools in which these men are studying and to determine which schools are satisfactorily equipped for professional training.

Personal.—Dr. John G. Wishard, Wooster, was elected president of the Union Medical Association of the sixth councillor district at its meeting held in Canton, February 19. ——Dr. John E. Sylvester, Wellston, while going over a grade crossing near Wellston in his automobile was struck by a train and suffered a fractured rib and severe injuries and contusions.——Dr. James G. Alcorn, Columbus, who has been doing relief work in Belgium for six months returned to Columbus, February 10.——The residence of Dr. Granville Reynard, Union City, was damaged by fire to the extent of $2,800, February 4.——Dr. Pinckney D. Shriner has been elected president of the Columbus Board of Health.——Dr. Mark D. Godfrey, Columbus, has been appointed district physician to succeed Dr. Michael A. Bartley, deceased.——Dr. Thurman R. Fletcher, Columbus, has been made chief of the state industrial commission, as the successor of Dr. William H. White.——Dr. Dan M. McDonald, chief surgeon of the Firestone Tire and Rubber Company, Akron, has been made medical director of the company.

PENNSYLVANIA

Reception to Medical Officers.—The physicians and nurses at the state hospital, Fountain Springs, held a reception, February 8, in honor of five members who have entered the military service.——The Lackawanna County Medical Society held a patriotic meeting at Scranton, at which a service flag with fifty stars was unfurled.——At a meeting of the Westmoreland County Medical Society at Greensburg, February 5, Dr. Ida E. Blackburn presented a service flag in recognition of the forty members who have gone into the military service.

Personal.—Dr. George H. Seaks, Gettysburg, had a narrow escape from drowning, February 20, while crossing a flooded creek in his automobile.——Dr. Lucius M. Elsinger, Scranton, has been made physician of the Lackawanna County Jail, succeeding Dr. Samuel P. Longstreet, resigned.——Dr. Roger P. Batchelor has assumed his duties as superintendent of the Palmerton Hospital, succeeding the late Dr. John W. Luther.——Lieut. George S. Condit, who was recently wounded in France, has returned to his home in Warren, invalided.

Philadelphia

Personal.—Police Surg. Leon F. Luburg, while on his way to answer a sick call, discovered a fire in a building on Vine Street, and roused the occupants, who escaped without casualty.——Dr. Francis L. Hughes heads the eligible list for the position of supervising medical inspector of the bureau of health.

Course in Neurologic Surgery at Philadelphia.—A third course in neurologic surgery for medical reserve officers to be given under direction of the Surgeon-General's Office has been started in Philadelphia, and is now being conducted at the Jefferson, Philadelphia General and University hospitals. It covers ten weeks, with thirty-one hours of work a week, and includes demonstrations, lectures, clinics and quizzes. Operative clinics are held eight hours a week at the University and Jefferson Hospitals, and special lectures by authorities from other cities are arranged for from time to time. The teaching staff includes Drs. Charles W. Burr, John Chalmers DaCosta, John B. Deaver, G. M. Dorrance, E. L. Eliason, George Fetterolf, Lewis Fisher, Charles H. Frazier, T. B. Holloway, Chevalier Jackson, John A. Kolmer, Paul A. Lewis, James H. Lloyd, S. DeW. Ludlum, D. J. McCarthy, J. W. McConnell, R. Tait McKenzie, Charles K. Mills, George P. Muller, H. K. Pancoast, George A. Piersol, Charles S. Potts, William C. Posey, B. Alexander Randall, William G. Spiller, B. A. Thomas, T. T. Thomas, T. H. Weisenburg, Andrew H. Woods, William Zentmayer, Majors Thomas Johnson and George M. Piersol, and Capt. Laurence Selling, Portland, Ore. Among the student officers are Majors Lomax Gwathmey, Norfolk, Va.; Robert M. Howard, Oklahoma City, and Carl W. Ney, New Orleans; Capts. F. W. Brodrick, Sterling, Ill.; Andrew F. McBride, Paterson, N. J.; George E. Maurer, New York City; Robert A. Noble, Bloomington, Ill.; Grover C. Penberthy, Detroit; Joseph E. Pirrung, Cincinnati; John W. Price, Jr., Louisville, Ky.; Jacob H. Shuford, Hickory, N. C.; Walter B. Turner, Youngstown, Ohio; Otto E. Utzinger, Astoria, Ore; Walter E. Whitney, Bangor, Me., and Benjamin F. Zimmerman, Louisville, Ky.; Lieuts. James B. Ayer, Boston; John Alexander, John H. Arnett, Philadelphia; Frank R. Bailey, Pittsburgh; Robin C. Buerki, Madison, Wis.; William C. Chaney, Chaney, Md.; Thomas A. Clay, Paterson, N. J.; Leo J. Dretzka, Detroit; Lonnie M. Grove, Tuscaloosa, Ala.; Carl B. Hudson, Boston; Tom R. Knowles, Colorado Springs, Colo.; L. H. Landon, Pittsburgh; E. H. Lenderman, Wilmington, Del.; Horace P. Routh, Little Rock, Ark., and Samuel B. Sturgis, Lenoir, N. C.

The director of the School of Neurological Surgery is Dr. Charles H. Frazier, and the adjutant is Capt. Thomas M. Joyce, Portland, Ore. Its headquarters are located at the University Hospital.

CANADA

Personal.—Lieut.-Col. Kenneth Douglas Panton, formerly city physician of Vancouver, B. C., who went to France with one of the earliest contingents from British Columbia, served for some time in field ambulance work, and then in base hospitals and was later placed in charge of Canadian General Hospital No. 5, Saloniki, has been sent to England in charge of Canadian General Hospital No. 14, Meads, Eastbourne.

GENERAL

Tuberculosis Congress Founder Dies.—Clark Bell, president of the Medico-Legal Society of New York for sixteen terms, and for the last twenty-five years editor and publisher of the *Medico-Legal Journal;* the founder of the American Congress on Tuberculosis, died suddenly in the Union League Club, New York City, February 22, from heart disease.

Hospital Treatment of Seamen.—By a bill which passed the Senate, February 5, seamen on all vessels belonging to and used in the service of the United States or any department or branch thereof, whose care and medical treatment are not otherwise provided for by the government, shall be entitled to such privileges of care and treatment as are now accorded to the seamen on documented vessels of the United States.

Tri-State Physicians Meet.—The annual meeting of the Tri-State Medical Society of Virginia and the Carolinas was held in Charleston, S. C., February 20 and 21, and the following officers were elected: president, Dr. Robert S. Cathcart, Charleston, S. C.; vice presidents, Drs. Douglas Vanderhoof, Richmond, Va.; Lester A. Crowell, Lincolnton, N. C., and Francis A. Coward, Columbia, S. C., and secretary-treasurer, Dr. Rolfe E. Hughes, Laurens, S. C., reelected for a sixteenth term. Richmond was selected as the place of meeting for 1919.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mt. Sinai Hospital, Montefiore Home, Hebrew Orphan Asylum and Stony Wald Sanatorium, New York City, each $1,000; Hospital for Deformities and Joint Diseases, and Society for the Relief of Cripples, New York, each $500, by the will of Rosalie Kaufman.

St. Rose's Home for Consumptives, and Molly Fancher Memorial for Cripples, New York City, each $1,000, by the will of Florence Starr.

Society for the Relief of Respectable Aged Women and Baptist Home Society, Newark, N. J., each $12,500 by the will of Aula S. Bailey.

Hygienic Institute, La Salle, Ill., $350,000 by the will of F. W. Matthiessen, LaSalle.

St. Elizabeth's Hospital, Dayton, O., $3,000 by the will of Mrs. Emily Plattfaut.

For an antituberculosis camp for negroes in Louisiana, a donation of $1,000 by Miss Kate Gordon.

FOREIGN

Scotch Physician Dies.—Dr. Elsie Maude Ingles, L.R.C.P. (Edin.), L.F.P.S. (Glas.), 1892; M.B.C.M. (Edin.), 1899; head of the Scottish hospital in Serbia, died recently in England as a result of hardships sustained in line of duty with the Serbian troops.

Retirement of Luciani.—Professor Luigi Luciani, of the chair of physiology at the University of Rome, retires this semester, having reached the age limit. He has been a member of the senate, of the national board of public instruction, and of many scientific societies. The Neurologic Society of London elected him to the place left vacant by the death of Brown-Sequard. His main fields of research have been the topography of the cerebellum and other parts of the brain, and the physiology of alimentation.

Cortezo Elected to Spanish Academy.—The editor of the *Siglo Medico* of Madrid, C. M. Cortezo, who has filled many high public positions, was recently elected a member of the national academy which has charge of the Spanish language, the Real Academia Española de Lengua. This is regarded as a tribute to the medical profession in general and also to the medical press as well as to Cortezo himself. In Spain and France, spelling and pronunciation are not left to inditreatment. The general plan of treatment includes rapid reduction in dose, substitution of a milder narcotic, stimulation of cellular activity, dilution of the toxic agents, and elimination, with encouragement.

NEW YORK

Personal.—Major Michael J. Thornton, formerly of Albany, who has been on duty with the British troops for several months, has been transferred to the American forces.——Dr. John H. Hamilton, Albany, has been appointed state epidemiologist of Iowa, succeeding Dr. Mark F. Boyd, resigned.

Naval Hospital at Pelham Bay Park.—A base hospital adjoining the naval encampment at Pelham Bay Park is in the process of construction. The hospital is to be similar to Base Hospital No. 1 on Gun Hill Road, the Bronx, and will accommodate about 2,000 patients. The hospital is to be used as a general hospital for the United States Navy.

Support Owen-Dyer Bill.—The New York State committee of the medical section of the Council of National Defense, of which Dr. George D. Stewart is chairman, is taking active measures to support the legislation recently introduced in Congress aiming to correct the inequitable situation whereby medical officers of the Navy are eligible to more advanced rank that those of the Army, in which a far smaller proportion of medical officers than line officers are eligible for advanced rank. The committee has written a letter to all the medical organizations of the state urging them to send to the New York State senators and representatives in Congress resolutions endorsing this legislation.

State Board of Drug Control.—The Whitney drug addiction committee presented its report to the legislature, March 1, recommending the establishment of a board of drug control within the state department of health. The plan presented provides for the appointment of a drug commissioner with such administrative powers as will enable him in cooperation with the federal internal revenue bureau to utilize as far as possible the information obtained by federal agents and inspectors. The drug commissioner is to have power to make rules and regulations for the control of the drug traffic. Under the plan provision will be made for the registration of all dealers in narcotics, as well as physicians and veterinarians, and for the inspection of all institutions treating drug addicts. According to estimates furnished by the committee, from 2 to 5 per cent. of the population of New York City are drug addicts, and a larger percentage is found in smaller cities and rural communities. The committee has also found that the use of narcotics is greatly on the increase.

New York City

Medical Unit for Palestine.—A gift of $100,000 has been announced by the joint distribution committee of the American Jewish Relief Committee for the medical unit of Hadassah, which will leave for Palestine within a few weeks. The British government will cooperate in assuring a safe and speedy transportation of the medical unit.

Academy Activities.—At a meeting of the New York Academy of Medicine, to be held, March 13, under the auspices of the public health committee, Dr. James Alexander Miller, who has recently returned from France, will deliver a lecture illustrated by lantern slides, on "Health Conditions in France, and America's Effort to Aid Them."

Personal.—Dr. Leo Buerger has been appointed professor of genito-urinary diseases in the New York Polyclinic Medical School and Hospital.——Dr. George Gray Ward, Jr., has been appointed chief surgeon and surgical director of the Woman's Hospital in the State of New York, succeeding Dr. Clement Cleveland, resigned.——Dr. Arthur J. O'Leary has been appointed assistant sanitary superintendent of the department of health for the Bronx.

More Rockefeller Gifts.—At its annual meeting, March 1, the Rockefeller Foundation announced that an additional $187,281 has been appropriated for war work. Of this sum $125,000 is for the purpose of continuing the war demonstration hospital of the Rockefeller Institute, $50,000 is for the medical division of the national research council of the Council of National Defense, and $12,281 for other medical war research and relief work. Among the members of the executive committee for the year 1918 are Drs. George E. Vincent and Simon Flexner. Dr. Hermann M. Biggs was elected a member of the international health board of the foundation.

Diagnostic Laboratories Must Keep Records.—The department of health has adopted regulations relating to the records to be kept by laboratories offering facilities for the diagnosis of contagious diseases. These regulations require that the person in charge of the laboratory shall cause a record to be kept wherein shall be entered the following information: the laboratory number and date of the receipt of every specimen to be tested to determine the presence of communicable disease, and the result of the laboratory test. The department of health may, at its discretion, require every such laboratory to furnish a statistical report covering a stated period and embodying the foregoing specified information.

NORTH CAROLINA

Personal.—Dr. Franklin H. Lackey, Fallston, is reported seriously ill with septicemia at a hospital in Lincolnton.——Dr. May S. Miles, Greensboro, has been elected president of the Guilford County Medical Society.

Physicians Found Guilty of Violating State Law.—It is reported that Drs. William P. S. Webb, Rockingham, and Robert T. Upchurch, Henderson, have been found guilty of violating the state statistics law by failing to report births occurring in their practice.

Unit O to be Equipped.—The Mecklenburg County Medical Society and the local chapter of the American Red Cross have undertaken to raise $15,000 to equip Unit O, which recently left Charlotte in command of Major Addison G. Brenizer, for preliminary training.

Tuberculosis Clinic Opens.—A free tuberculosis clinic was opened at Charlotte at the city auditorium, January 29, under the auspices of the city health department and the United States Public Health Service. Acting Asst. James A. Keiger, of the United States Public Health Service, is in charge of the clinic, which will be open at 2:30 p. m., Tuesdays and Fridays of each week.

Standardization of Hospitals.—A joint session of committees from the Medical Society of the State of North Carolina, and the North Carolina State Nurses' Association met in Greensboro, February 14, to confer on the standardization of the hospitals of the state, and on the possible establishment of a North Carolina Hospital Association as a component of the National Hospital Association. The state society was represented by Dr. Jacob F. Highsmith, Fayetteville; Henry F. Long, Statesville, and Major John T. Burrus, High Point.

OHIO

Hospital Notes.—The Kings Daughters Hospital has been incorporated at Ashland.——Dr. Curtiss Ginn, Dayton, has been named a member of the board of trustees of the Miami Valley Hospital, Dayton, succeeding Dr. Harry E. Palmer.

Medical Building for Columbus.—Drs. William D. Inglis, E. H. Ryan, Charles S. Means and Yeatman Wardlow have taken a lease on the property of Dr. Theodore W. Rankin and will erect on this site a building to contain fourteen suites of offices for physicians and dentists.

New Academy Officers.—At the annual meeting of the Dayton Academy, January 25, it was voted to continue the organization and the following officers were elected: president, Dr. Howard V. Dutrow; vice president, Dr. Rufus C. Pennywitt; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. John D. Fouts.

Dr. King Addresses Academy.—Dr. F. Truby King, president of the Royal New Zealand Society for the Health of Women and Children, spoke at an open meeting of the Academy of Medicine of Cleveland, held in the council chamber of the city hall, February 8, on "The Responsibility of the Municipality for the Welfare of Its Mothers and Children."

New Medical College Building Dedicated.—The new building of the University of Cincinnati College of Medicine was dedicated, February 25, the principal speakers being Major Christian R. Holmes, dean, and Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching. The new medical building was erected and equipped at a total cost of approximately $600,000.

Enlisted Reserve Corps.—Dr. F. C. Waite, Cleveland, has been called to Washington, D. C., to assist Major Horace D. Arnold, M. R. C., in the new division of the Surgeon-General's Office, which is to have charge of the medical, dental and veterinary students who, under the selective service act, have been enlisted in the Medical Reserve Corps and placed on the inactive list, pending the completion of their education. Any student who does not make satisfactory progress will be dropped from the reserve list and become eligible for active service. The division is also to have oversight of the schools in which these men are studying and to determine which schools are satisfactorily equipped for professional training.

Medical Corps, thus raising the status of the army medical service to the position accorded to it in the military organization of our allies. The undersecretary of state for war replied that it is not intended to place the director-general of the army medical service on the army council; but whenever matters affecting medical organization or administration are before the council, the director-general will be called in to give the council the benefit of his advice.

Call for Medical Students

The deans of the leading hospitals have summoned meetings of medical students to put before them the request from the authorities of an additional 400 students every six months for service with the army and navy. Those required are "fourth-year men," who are to act as surgeon probationers. The students, many of them who wish to serve, point out, however, that the interruption of their studies would throw them back greatly—a consideration when parents are struggling professional men—but it is hinted that should the necessary quota not be forthcoming, the authorities will conscript the men who hold back.

Increase of Medical Fees

The increased cost of living, which as regards the necessities of life is doubled, has led physicians in various parts of the country, but not universally, to increase their fees. The physicians of Wimbledon, an important London suburb, have unanimously agreed that, owing to the increased cost of living and the still greater increase in the cost of conducting medical practices, there shall be a general increase in the fees charged for professional attendance and consultations, such increase to be subject to variation or remission in individual cases in which some good reason is shown. When messages arrive after a physician has left home and these entail inconvenience to other patients by compelling physicians to postpone or break appointments, it has been agreed to charge an extra fee for the special visit.

Henry Maudsley

Henry Maudsley, M.D., Lond., F.R.C.P., Lond., LL.D., Edin., a foremost writer on the physiology and pathology of the mind, has died in his eighty-third year. One of his first appointments was that of resident physician to the Manchester Royal Lunatic Hospital in 1859. In 1864 he came to London and was appointed physician to the West London Hospital, and in 1869 professor of medical jurisprudence at University College. From an early period he devoted himself to literary work, and in 1862 became editor of *Mental Science*. His first important publication was his Goulstonian Lectures on the "Relations Between Body and Mind, and Between Mental and Other Diseases of the Nervous System." Other works followed which soon became standard: "Responsibility in Mental Disease" (1874), "Physiology of Mind" (1876), "Pathology of Mind" (1879), "Body and Will" (1883), "Natural Causes and Supernatural Seemings" (1887), "Life in Mind and Conduct" (1902), "Studies of Organic and Human Nature" (1903), and "Heredity, Variation and Genius" (1908). He was not only a great alienist, but also a philosopher who took a leading part in the controversy between "materialists" and "vitalists" or "spiritualists." His views were certainly materialistic. They are well summed up in his own words: "Recognizing the unity of body and mind, and viewing mind in its moral manifestations as the supreme and, so to speak, sublimated expression of vital function, it plainly appears that the study of its unsound manifestations can only become fruitful by means of a thorough and complete observation of all the bodily functions and of all their manifold disorders." Seeing the great want of a hospital for the early treatment of mental disease, he founded one in London by the munificent donation of $150.000. When the war broke out, this hospital was hastily completed. It is now used as a military hospital for the treatment of war psychoses and neuroses.

Science in the War

The staff of the Natural History Museum has been of assistance to various public departments in connection with the war. The following are examples of some of the questions which its members have been asked to answer: (1) nature of some organisms which caused blocking up of certain sea-water pipes; (2) as to some mite-infested oats at the front; (3) application of a remedy for the rice weevil in connection with the disease of beriberi; (4) as to methods of destruction of bedbugs; (5) the identification of specimens of larvae found in drinking water; (6) nature of wood used in the construction of a propeller of a Zeppelin brought down in this country; (7) inquiries as to certain wood stated to possess luminous properties; (8) questions arising out of the Canadian commission to consider the alleged depredations of sea lions on the Pacific coasts of North America, in connection with the fishing and canning industries; (9) identification of certain animal forms of tinned food, such as Pacific lobsters, sardines or sprats; (10) the identification of poisonous fishes in the West Indies; (11) the sponge fishery in the West Indies, and (12) the introduction of reindeer and other animals into South Georgia.

Association News

HOTEL HEADQUARTERS FOR THE CHICAGO SESSION

The following hotels have been tentatively designated as general and section headquarters for the Chicago Session, June 10 to 14:

General Headquarters: Hotel Sherman, North Clark and West Randolph.

Practice of Medicine: Hotel Morrison, 83 West Madison.

Surgery, General and Abdominal: Auditorium Hotel, 430 South Michigan.

Obstetrics, Gynecology and Abdominal Surgery: Congress Hotel, South Michigan and Congress.

Ophthalmology: Hotel LaSalle, LaSalle and West Madison.

Laryngology, Otology and Rhinology: Hotel LaSalle, LaSalle and West Madison.

Diseases of Children: Congress Hotel, South Michigan and Congress.

Pharmacology and Therapeutics: Auditorium Hotel, 430 South Michigan.

Pathology and Physiology: Auditorium Hotel, 430 South Michigan.

Stomatology: Congress Hotel, South Michigan and Congress.

Nervous and Mental Diseases: Blackstone Hotel, South Michigan and East Seventh.

Dermatology: Blackstone Hotel, South Michigan and East Seventh.

Preventive Medicine and Public Health: Auditorium Hotel, 430 South Michigan.

Genito-Urinary Diseases: Auditorium Hotel, 430 South Michigan.

Orthopedic Surgery: Congress Hotel, South Michigan and Congress.

Gastro-Enterology and Proctology: Auditorium Hotel, 430 South Michigan.

Scientific Exhibit, Registration Bureau, Commercial Exhibit, Information Bureau, and Branch Postoffice: Hotel Sherman, North Clark and West Randolph.

Marriages

Lieut. Harold Wilson, M. R. C., U. S. Army, Conneaut, Ohio, on duty at Camp Sherman, Chillicothe, Ohio, to Miss Maude Kerr of Greenfield, Ohio, at Hillsboro, Ohio, February 9.

Lieut. Benjamin Walter Provost, M. C., U. S. Army, Peru, Ill., on duty in Washington, D. C., to Miss Katherine Bell Conway of Peru, Ill., in Springfield, Mass., February 12.

Major Joseph Gamewell Evans, M. R. C., U. S. Army, Los Angeles, on duty at Fort Lawton, Seattle, to Miss Mildred Marion Hunter of Tracy, Minn., at Seattle, February 14.

Howard Jackson Simmons, M.D., Blackfoot, Idaho, to Miss Hannah B. Lyon of Pocatello, Idaho, at Idaho Falls, Idaho, February 12.

Maxwell Kaufman, M.D., Brooklyn, to Miss Celia Pearl Buchner of the Bronx, New York City, February 15.

Joseph A. McGinnis, M.D., to Miss Monica G. Bolger, both of Germantown, Philadelphia, February 12.

Henry Keller Mohler, M.D., to Miss Nellie Whitely, both of Philadelphia, February 21.

Samuel Dickson Barr, M.D., to Miss Julia P. Hughes, both of Boston, recently.

Deaths

William Scott Kendrick, M.D., Atlanta, Ga.; Atlanta (Ga.) Medical College, 1874; aged 75; formerly a Fellow of the American Medical Association; a member of the Medical Association of Georgia; senior professor of medicine in his alma mater; medical director of the Southern State Life Insurance Company; from 1891 to 1895 dean and professor of physical diagnosis and clinical medicine in the Atlanta Medical College; later instrumental in the consolidation of the Atlanta Medical College and the Southern Medical College as the Atlanta College of Physicians and Surgeons in 895, and in the consolidation of the Atlanta College of Physicians and Surgeons and the Atlanta School of Medicine in 913, as the Atlanta Medical College; died at his home, February 22.

Col. William Jerome Cronyn, M.D., M. C., Wis. N. G., Milwaukee, Wis.; University of Buffalo, N. Y., 1870; aged 69; formerly a fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; formerly professor of forensic medicine and military hygiene in Milwaukee Medical College; a veteran of the Civil War; surgeon-general of the Grand Army of the Republic for New York State in 1885; for three years acting assistant surgeon in the United States Navy; formerly a member of the Dunkirk (N. Y.) Board of Education, common council and board of health; chief of the consulting staff of Milwaukee Hospital; died at his home, February 20.

William J. Whelan, M.D., Youngstown, Ohio; Northwestern University Medical School, Chicago, 1867; College of Physicians and Surgeons in the City of New York, 1875; aged 74; surgeon of U. S. Volunteers during the Civil War; one of the founders of the Youngstown City Hospital, and the last surviving member of the original staff; one of the organizers and an honorary member of the Mahoning County Medical Society; died at his home, February 19, from cardiac asthma.

Conrad Diehl, M.D., Buffalo; University of Buffalo, N. Y., 1866; aged 74; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; coroner of Erie County in 1868; mayor of Buffalo from 1897 to 1902; from 1870 to 1878 major-surgeon of the Sixty-Fifth Infantry, N. G., S. N. Y.; also a druggist; died at his home, February 20, from the effects of a fall on a slippery sidewalk a week before.

Anthony George Baker, M.D., Philadelphia; Jefferson Medical College, 1887; aged 69; a member of the Medical Society of the State of Pennsylvania; a specialist in pediatrics: physician-in-chief of the Chinese Medical Dispensary, Philadelphia, since 1897; a clergyman of the Presbyterian Church from 1873 to 1877, and of the Protestant Episcopal Church from 1878 to 1887; died at his home, February 17, from pneumonia.

James G. Riddick, M.D., Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 56; formerly a member of the Medical Society of Virginia; for ten years mayor of Norfolk; for twelve years health officer, and at the time of his death city sergeant; died at his home, February 15. At a called meeting of the Norfolk Medical Society, resolutions of sympathy and regret were unaminously adopted.

David Warman, M.D., Trenton, N. J.; Bellevue Hospital Medical College, 1862; aged 81; acting assistant surgeon, U. S. Army, during the Civil War; formerly a Fellow of the American Medical Association; one of the founders, manager and vice president of the Children's Home Society of New Jersey, and a member of the state charities aid; died at the home of his daughter at Allenhurst, N. J., February 5.

Daniel Joseph Sheehan, M.D., Spring Valley, N. Y.; Bellevue Hospital Medical College, 1884; aged 57; a Fellow of the American Medical Association; from 1899 to 1904 a member of the staff of the New York Board of Health; physician in charge of the Catholic Orphanage, Nanuet; visiting physician to St. Vincent's and St. Agatha's Home; died at his home, February 21, from pneumonia.

Edwin I. Harrington, M.D., Yonkers, N. Y.; Jefferson Medical College, 1881; aged 60; a Fellow of the American Medical Association; formerly president of the Jenkins Medical Society of West Chester County, and health commissioner of Yonkers; consulting surgeon to St. Joseph's Hospital, and consulting physician to the Home for the Aged, Yonkers; died at his home, February 23.

Alexander Dunlap Hagadorn, M.D., Lansing, Mich.; University of Michigan, Ann Arbor, 1871; aged 74; formerly a Fellow of the American Medical Association; a member of the Michigan State Medical Society; formerly president of the Bingham County Medical Society and health officer of Lansing; died at his winter home in St. Cloud, Fla., February 11.

Edward W. Heim, M.D., Buffalo; University of Buffalo, N. Y., 1900; aged 40; a member of the Medical Society of the State of New York; who sustained a fracture of the skull and crushing injuries of the chest in a collision between his automobile and a street car, February 16; died a few hours later from his injuries at the Sisters' Hospital, Buffalo.

George Henry Lathrop, M.D., Livingston Manor, N. Y.; Bellevue Hospital Medical College, 1875; aged 69; president of the Sullivan County (N. Y.) Medical Society in 1878; also a pharmacist; local surgeon of the New York, Ontario and Western Railroad; for several years town health officer; died at his home, February 15, from pneumonia.

Harry Madison Cutts, M.D., Brookline, Mass.; Harvard Medical School, 1883; aged 59; a Fellow of the American Medical Association; Medical Examiner (coroner) of Norfolk County since 1898; president of the Norfolk District Medical Society; surgeon to the Naval Brigade, M. V. M.; died at his home, February 21, from pneumonia.

LeRoy Allan Newton, M.D., Seattle; University of Pennsylvania, Philadelphia, 1895; aged 54; a Fellow of the American Medical Association; for many years a practitioner of Greenfield, Mass.; formerly chairman of the Greenfield Board of Health and a member of the Franklin County Public Hospital; died at his home, February 14.

Augustus P. Taylor, M.D., Thomasville, Ga.; New York University, New York City, 1870; aged 68; a member of the Medical Association of Georgia; chairman of the city board of health; for many years physician to the Thomasville City Hospital; a member of the state board of health since 1903; died at his home, February 16.

Charles Gustavus McManaway, M.D., Charlotte, N. C.; Kentucky School of Medicine, 1883; aged 60; formerly a member of the Medical Society of the State of North Carolina; for a quarter of a century a practitioner of Charlotte, and for several years a member of the board of aldermen; died at his home, February 15.

Arthur Julius Holmquist, M.D., Denver; Denver College of Medicine, 1897; aged 45; formerly first lieutenant, M. R. C., U. S. Army, and on duty at Fort Riley, Kan.; died at his home in Globeville, Denver, February 13, from the effect of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Died in the Service

Capt. Milton Jay Lichty, M.D., M. R. C.,
U. S. Army, 1870-1918

(See The Journal, Feb. 23, p. 556)

Edward J. Norman, M.D., Eureka, Kan.; University Medical College of Kansas City, Mo., 1897; aged 44; formerly a Fellow of the American Medical Association; while driving in his automobile over a grade crossing near Eureka, Februray 18, was struck by a train, and died from his injuries four hours later.

Antranig Ayvazian, M.D., New York City; New York University, New York City, 1887; aged 66; a Fellow of the American Medical Association; medical inspector of the health department of the city of New York since 1887; died in the Polyclinic Hospital, New York City, February 13, from pneumonia.

Elbert P. Tibbals, M.D., Port Huron, Mich.; College of Physicians and Surgeons in the City of New York, 1864; aged 75; formerly a member of the Michigan State Medical Society; for many years parliament physician to the Prudent Patricians of Pompeii; also a druggist; died at his home, February 14.

Edward Page, M.D., Boston; Harvard Medical School, 1870; aged 91; a graduate of the first dental class of Harvard University; first president of the Harvard Dental Association; treasurer of the Massachusetts Dental Society for twenty years; died in the Home for Aged Men, Boston, February 9.

Frederick Childs Jones, M.D., Basking Ridge, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 63; a Fellow of the American Medical Association, and president of the Somerset County (N. J.) Medical Society in 1916; died at his home, February 8, from pleuropneumonia.

John MacLeod Martin, M.D., Boston; McGill University, Montreal, 1889; aged 58; a Fellow of the American Medical Association; F.R.C.S. (Lond.), L.R.C.P. (Lond.); professor of clinical medicine in the College of Physicians and Surgeons, Boston; died at his home in Roxbury, Boston, February 10.

George R. Ogden, M.D., Grafton, W. Va.; Louisville and Hospital Medical College, Louisville, Ky., 1908; aged 53; formerly a Fellow of the American Medical Association; a member of the West Virginia State Medical Association; died in St. Mary's Hospital, Clarksburg, W. Va., February 16.

Lieut. Alexander Cooke Butcher, M.D., M. R. C., U. S. Army, Philadelphia; Medico-Chirurgical College of Philadelphia, 1891; on duty at Camp Lee, Georgia, formerly assistant medical inspector of the Philadelphia Bureau of Health; assigned to school work; died at his home, February 22.

Albert Homer Burket, M.D., McKee's Rocks, Pa.; Miami Medical College, Cincinnati, 1877; aged 70; a member of the Medical Society of the State of Pennsylvania; for forty years a member of the Allegheny County Medical Society; died at his home, February 12, from senile debility.

Elbridge H. King, M.D., Muscatine, Iowa; Detroit Medical College, 1870; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War; local surgeon of the Chicago, Milwaukee and St. Paul system; died at his home, February 14, from lobar pneumonia.

Arthur Barrett Eustace, M.D., Chicago; Northwestern University Medical School, Chicago, 1907; aged 32; formerly a Fellow of the American Medical Association, and instructor in surgery in his alma mater; died in Phoenix, Ariz., February 19, from tuberculosis.

James Oliver, M.D., Athol, Mass.; Harvard Medical School, 1862; aged 81; a veteran of the Civil War; for five years representative in the legislature from the Athol District; for many years district medical examiner (coroner); died at his home, February 8.

John C. McGillivray, Denver (license, Colorado, 1889); aged 53; a member of the Colorado State Medical Society; for sixteen years police surgeon of Denver, and formerly assistant health commissioner; died at his home, February 11, from erysipelas.

Isaac Howard Davis, M.D., Baltimore; University of Maryland, Baltimore, 1885; aged 58; a dentist and for many years professor of operative dentistry in his alma mater; died at his home in Roland Park near Baltimore, February 8, from pneumonia.

George Mortimer Hill, M.D., Chicago; Hahnemann Medical College, Chicago, 1897; aged 46; professor of theory and practice of medicine in his alma mater; died in his apartment in the Hyde Park Hotel, February 10, from heart disease.

Charles R. Gough, M.D., Wausau, Wis.; Marquette University, Milwaukee, 1913; aged 31; a Fellow of the American Medical Association; died in St. Mary's Hospital, Wausau, February 10, from paralysis following quinsy.

George C. Chaney, M.D., Independence, Kan.; Eclectic Medical Institute, Cincinnati, 1877; aged 72; twice mayor of Independence; a veteran of the Civil War; also a pharmacist; died at his home, February 4, from lobar pneumonia.

Grant Thomas Johnson, M.D., Wamego, Kan.; Kansas City (Mo.) Medical College, 1893; aged 54; formerly a member of the Kansas Medical Society; died in St. Francis' Hospital, Topeka, February 13, from pneumonia.

William Earland Robinson, M.D., Oelwein, Iowa; State University of Iowa, Iowa City, 1893; aged 51; a member of the Iowa State Medical Society; at one time coroner of Fayette County; died at his home, February 14.

Henry F. Fullerton, M.D., Buffalo; University of Buffalo, N. Y., 1875; aged 84; for nearly fifty years principal of Grammar School No. 16, Buffalo; never a practitioner of medicine; died at his home, February 13.

Anton John Jindra, M.D., Chicago; Northwestern University Medical School, 1917; aged 24; an intern in Cook County Hospital; was shot and killed, February 15, by a woman to whom he is said to have been engaged.

William David Craig, M.D., Henderson, Iowa; State University of Iowa, Iowa City, 1894; aged 51; a Fellow of the American Medical Association; died in Immanuel Hospital, Omaha, February 11, from uremia.

Joseph E. Lowery, M.D., Homer, Ill.; Drake University, Des Moines, Iowa, 1885; aged 56; formerly a Fellow of the American Medical Association; died at his home, November 18, from cerebral hemorrhage.

Lorenzo F. Scofield, M.D., New Philadelphia, Ohio; Starling Medical College, 1881; aged 64; for many years a practitioner of Columbus, Ohio; died at his home, February 12, from cerebral hemorrhage.

Edward Manning Skinner, M.D., Boston; Harvard Medical School, 1862; aged 80; a member of the Massachusetts Medical Society; died at the home of his daughter in Chestnut Hill, Boston, February 8.

John H. MacCallum, M.D., Rochester, N. Y.; Pulte Medical College, Cincinnati, 1889; aged 57; was stricken with heart disease and died while making a professional call in Rochester, February 10.

James G. Williamson, Jr., M.D. Columbia, Tenn.; Vanderbilt University, Nashville, Tenn., 1909; aged 32; a Fellow of the American Medical Association; died in Asheville, N. C., February 6.

John A. Hagerman, M.D., Sciota, Pa.; University of Pennsylvania, Philadelphia, 1878; aged 67; a Fellow of the American Medical Association; died at his home, January 27, from pneumonia.

George Washington Hammond, M.D., Franklin, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1890; died at his home, February 6, from pneumonia.

Pliny W. Barber, M.D., Newark, N. J.; Hospital College of Medicine, Louisville, Ky., 1875; aged 63; district physician of the eighth district; died at his home, January 15.

Anna M. Dalrymple McCullough, M.D., Philadelphia; Women's Medical College of Philadelphia, 1883; died at the home of her daughter in Germantown, February 10.

Daniel Denison Whedon, M.D., San Diego, Calif.; Long Island College Hospital, Brooklyn, 1905; aged 39; died at his home, February 5, from cerebral hemorrhage.

Howard Jackson Powelson, M.D., Middletown, N. Y.; Hahnemann Medical College, Philadelphia, 1895; aged 43; died at his home, February 5, from pneumonia.

Ella Eliza Severance, M.D., Camden, N. J.; Boston University, 1901; aged 60; died at the West Jersey Homeopathic Hospital, Camden, N. J., February 8.

Wenzel Majeski, M.D., Chicago; Bennett Medical College, Chicago, 1881; aged 73; died in the Alexian Brothers' Hospital, Chicago, February 1.

A. A. Shobe, M.D., Jerseyville, Ill.; Missouri Medical College, St. Louis, 1869; aged 69; died at his home, December 5, from cirrhosis of the liver.

Todd J. Wilson, M.D., Palmer, Mich.; University of Illinois, Chicago, 1913; aged 34; died at his home in Red Ridge, Mich., February 1.

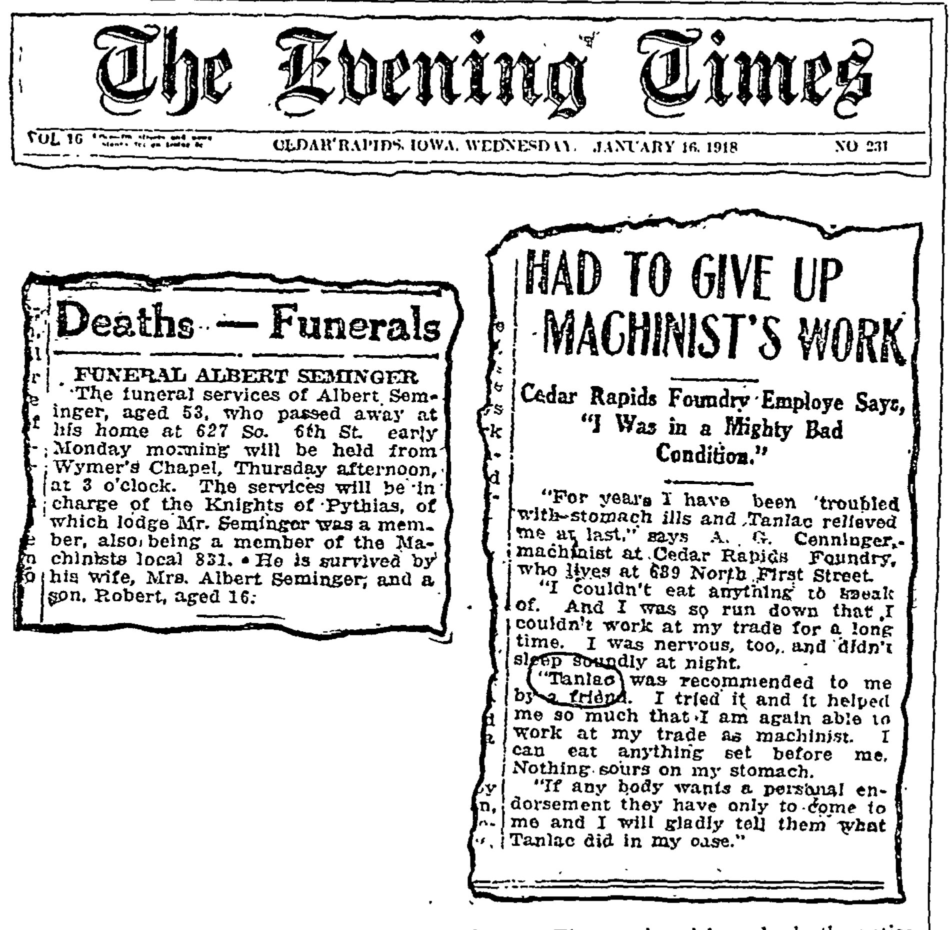
Vincent C. Bidgood, M.D., Churchland, Va.; University of Virginia, Charlottesville, 1881; died at his home, February 5.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SOME MISBRANDED NOSTRUMS

Hayssen's Goitre Cure.—Minnie D. Hayssen trading as H. H. Hayssen Co., Chunchula, Ala., exploited two nostrums, a "Sure Goitre Cure Balsam" and a "Sure Goitre Cure Ointment." The products were declared misbranded by the federal authorities. Analysis showed that the "Balsam" was a solution of potassium iodid and sugar in alcohol and water with about 12 per cent. alcohol, 5.41 per cent. potassium iodid and nearly 50 per cent. sugar. It was sold as a permanent and sure cure of all obstinate cases of goitre. These claims the government declared were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The "Ointment" was found to be composed chiefly of petrolatum ("vaseline") and potassium iodid containing about 10.7 per cent. of the potassium salt. Practically the same claims were made for the "Ointment" as for the "Balsam" and in each case the purchaser was recommended to use both the preparations at the same time. Minnie D. Hayssen pleaded guilty and was fined $25.—[*Notice of Judgment, No. 4551.*]



The Evening Times

VOL 16 CEDAR RAPIDS, IOWA, WEDNESDAY, JANUARY 16, 1918 NO 231

Deaths — Funerals

FUNERAL ALBERT SEMINGER

The funeral services of Albert Seminger, aged 53, who passed away at his home at 627 So. 6th St. early Monday morning will be held from Wymer's Chapel, Thursday afternoon, at 3 o'clock. The services will be in charge of the Knights of Pythias, of which lodge Mr. Seminger was a member, also being a member of the Machinists local 831. He is survived by his wife, Mrs. Albert Seminger, and a son, Robert, aged 16.

HAD TO GIVE UP MACHINIST'S WORK

Cedar Rapids Foundry Employe Says, "I Was in a Mighty Bad Condition."

"For years I have been troubled with stomach ills and Tanlac relieved me at last," says A. G. Cenninger, machinist at Cedar Rapids Foundry, who lives at 689 North First Street.

"I couldn't eat anything to speak of. And I was so run down that I couldn't work at my trade for a long time. I was nervous, too, and didn't sleep soundly at night.

"Tanlac was recommended to me by a friend. I tried it and it helped me so much that I am again able to work at my trade as machinist. I can eat anything set before me. Nothing sours on my stomach.

"If any body wants a personal endorsement they have only to come to me and I will gladly tell them what Tanlac did in my case."

Another Tanlac Testimonial from the Grave.—The testimonial and death notice appeared in the same issue of the local paper. They refer to the same individual. The difference in spelling of the names is due to typographical errors; the difference in the addresses due to the fact that the testimonial was given before moving to the address at which the death occurred.

MacDonald's Atlas Compound Famous Specific No. 18.—"The Greatest Remedy on Earth for Catarrh, Rheumatism, Blood, Stomach, Heart, Liver, Kidney and all Nervous Ailments" was, according to Jeremiah MacDonald of Binghamton, N. Y., the nostrum sold as "Dr. MacDonald's Atlas Compound Famous Specific No. 18." Also, according to the same authority, it was the "Safest and Best Blood Purifier in the World." Analyzed by federal chemists the "Famous Specific" was reported to be pills consisting essentially of sodium sulphate (Glauber's salt), sodium bicarbonate (baking soda), a laxative plant drug (apparently aloes), ginger, small amount of phosphate, a trace of alkaloid and talc. The pills were coated with starch, calcium carbonate and sugar and the coating colored with fluorescin. Naturally the federal authorities declared the claims made for these pills to be knowingly false and fraudulent. MacDonald, after pleading guilty, was fined $30.—[*Notice of Judgment No. 4559.*]

Faucine.—"Faucine" marketed by the Faucine Co., Meridian, Miss., was sold under such claims as:

> "The Most Wonderful Antiseptic and Blood Tonic in the World."
>
> "A warranted remedy for piles, old sores and ulcers, eczema, ringworm, tetter, cuts, burns, insect stings, diarrhoea and flux, cholera morbus, dyspepsia, indigestion, scratches on horses, saddle and harness galls."

Nor was this all. Faucine was also good for "female complaints" and "Hog Cholera"; for piles and pellagra, to say nothing of being a "sure cure for chickens that are diseased with cholera." The Government seized 21 dozen retail packages of this marvel, declaring the product misbranded in that the claims made for it were false and fraudulent. No claimant appeared for the property and judgment of condemnation and forfeiture was entered and the court ordered that the stuff should be destroyed by the United States marshal.—[*Notice of Judgment No. 4563.*]

Contrell's Magic Troche.—The Contrell Co., Tenafly, N. J., shipped into Massachusetts a quantity of "Contrell's Magic Troche." These were analyzed by the federal chemists who reported that the "Troches" had a total alkaloid per cent. of 0.031. The alkaloids present (cephaelin and emetin) indicated the presence of ipecac. Among the claims made for the troche was one to the effect that it was "the most wonderful remedy ever made to cure . . . Catarrh . . . Asthma and Diphtheria. . . ." This claim the authorities condemned as false and fraudulent and applied knowingly, recklessly and wantonly. The company pleaded guilty and was fined $25. — [*Notice of Judgment, No. 4569.*]

Benn Capsules.—Joseph Arthur Bennett, Lowell, Mass., was charged with making false and fraudulent claims for "Benn Capsules," sold as having been "manufactured for the Benn Chemical Co., Lowell, Mass." The capsules on analysis were found to contain strychnin, arsenic, iron and water soluble sulphates. They were sold as a cure for dyspepsia, headache, backache, insomnia, pains in the side, leucorrhoea and falling of the womb, no matter "of whatever gravity or standing." They were also sold as a preventive of consumption and as a kidney remedy. The claims were declared false and fraudulent. Bennett pleaded guilty and was fined $25.—[*Notice of Judgment No. 4570.*]

Collins' Voltaic Electric Plasters.—The federal authorities seized 4,608 "Collins Voltaic Electric Plasters" said to be distributed by Potter Drug and Chemical Corporation, Boston, on the charge that the claims made for them were false. The claims made for the plasters were, in part, to the effect that they would relieve pain and inflammation of the kidneys; that they were of great value in fever and ague, as well as in indigestion, bilious colic and affections of the liver; that they were good for simple bone fractures and would relieve many cases of bronchitis and asthma; also that they would give gratifying relief in cases of "female weakness." These claims were declared false and misleading and the federal authorities requested that the product be condemned. The Potter Drug and Chemical Corporation filed its claim for the property and, having given a bond, the court ordered that the product should be delivered to the concern on payment of the cost of the proceedings.—[*Notice of Judgment No. 4572.*]

Mother Noble's Healing Syrup.—"Mother Noble's Healing Syrup," according to the label, was "prepared by Dr. E. P. Huyler, successor to Abel King, M.D., Clark Johnson Medicine Co., Props., New York." It was sold under the claim made on the trade package that it was an effective remedy for all diseases of the liver, kidneys, stomach, bowels, skin and blood and an unfailing remedy for dyspepsia, fever, ague and rheumatism, as well as a cure for kidney disease, piles and dropsy. The federal chemists reported that the syrup was a watery solution of a vegetable cathartic drug containing a large amount of undissolved material, mostly licorice, and containing, too, iron chlorid, Epsom salts and sand. The authorities charged that the claims made were recklessly and wantonly false and fraudulent. The Clark Johnson Medicine Company pleaded guilty and was fined $40.—[*Notice of Judgment No. 4579.*]

Stuart's Buchu and Juniper Compound.—The government seized 144 packages of Stuart's Buchu and Juniper Compound put out by the Stuart Manufacturing Co. of Atlanta, Ga., and guaranteed by John B. Daniel of Atlanta, Ga. The stuff admittedly contained 16 per cent. alcohol and it was recommended as a remedy for "Weakness arising from Excesses, Habits of Dissipation, Early Indiscretion or Abuse"; for "inflammation of the Kidneys . . . Catarrh of the Bladder, Diabetes, Dropsy . . . and For All Diseases of the Urinary Organs in Either Sex." Many other equally extravagant claims were made for it. The government charged that the stuff was misbranded first in that the name "Buchu and Juniper Compound" was false and misleading because "in truth and in fact it contained no appreciable amount of buchu and juniper." It also charged that the therapeutic claims were false and fraudulent because the stuff contained no ingredient or combination of ingredients capable of producing the effects claimed. John B. Daniel (Inc.) filed its claims and admitted the facts set forth in the libel. Judgment of condemnation and forfeiture was entered. The court ordered that as in its judgment the stuff might be relabeled under the supervision of the United States Food and Drug Inspector so that it would not violate the law, the product should be released and restored to the claimant on payment of the costs and the execution of a bond in the sum of $125.—[*Notice of Judgment No. 4583.*]

MEDEOL SUPPOSITORIES

Report of the Council on Pharmacy and Chemistry

The following report on Medeol Suppositories has been adopted by the Council, and its publication authorized.

W. A. Puckner, Secretary.

"Medeol Suppositories" (Medeol Company, Inc., New York) appear to be an imitation of "Anusol Suppositories" which, in 1907, were found to be inadmissible to New and Nonofficial Remedies. A comparison of the composition and of the claims made for the two preparations will be of interest in the present consideration of Medeol Suppositories.

Anusol Suppositories (1909)		Medeol Suppositories (1917)	
Anusoli	7.5	Medeol	0.25
Zinc oxid	6.0	Zinc Oxid	0.5
Balsam Peru	1.5	Acid. Tannic	0.15
Ol. theobrom.	19.0	Bals. Peru	0.16
Ungt. cerat.	2.5	Cocoa Butter and wax *q. s.* for 1 suppository.	
for 12 suppositories			

"Anusol" was formerly said to be bismuth iodoresorcinsulphonate. The A. M. A. Chemical Laboratory published a report in 1909 showing that the suppositories contained only 1 per cent. of the iodin declared in the "formula," and were greatly deficient in bismuth and sulphur. After the publication of the report the American agents for the product disclaimed that "Anusol" was a definite chemical compound. Today Anusol Suppositories are said to contain unstated amounts of the indefinite "bismuth oxyiodid and resorcinsulphonate."

"Medeol" is said to be "resorcinated iodo bismuth," but no information is vouchsafed as to the character or composition of the ingredient. The therapeutic claims made for the two preparations are similar, as the following, taken from circulars, show:

Anusol Suppositories	Medeol Suppositories
An innocuous, non irritant remedy for anal, rectal and vaginal inflammatory affections, especially for Hemorrhoids!	An innocuous, Non-irritant, Efficient Antiphlogistic for use in inflammatory diseases of the rectum, anus and vagina especially in Hemorrhoids.
The local medicinal treatment of hemorrhoidal and other inflammatory ano-rectal conditions has always been unsatisfactory. The usual media cannot be applied in effective concentration without producing intense inflammatory reactions; they are either ineffective or intolerable . . .	Hitherto most of the local remedies used in these conditions have either been too irritating to be employed in sufficient concentration to be efficient or they have lacked efficiency per se. . . .
Anusol suppositories are absolutely free from narcotic, caustic or other injurious ingredients and may unhesitatingly be used by both sexes, at any age and under all conditions.	Medeol suppositories do not contain any narcotic or any caustic or other constituent having violent action; their blandness permits of their use in either sex and at all ages.

The claims made for these preparations—as for instance "that surgical treatment . . . should rarely be undertaken until Medeol Suppositories have been given a thorough trial"—are misleading in that they create the inference that the limitations in the palliative treatment of piles have been overcome. It is altogether untrue that these mixtures can be expected to "relieve the most obstinate cases," as stated in a Medeol circular. This, from an Anusol circular, is equally misleading:

> "If dietetic and other requirements are complied with, even the most obstinate chronic cases will frequently readily yield to treatment with Anusol Suppositories."

The Council declared Medeol Suppositories inadmissible to New and Nonofficial Remedies because their composition is secret (Rules 1 and 2); because unwarranted therapeutic claims are made for these (Rule 6); because the name is objectionable (Rule 8), and because the combination is unscientific (Rule 10).

In those cases of hemorrhoids in which palliative measures may be expected to enable the patient to avoid surgical interference and afford relief from attacks, the object should be to secure cleanliness, to avoid irritation, whether it be by friction or irritating fecal matter, to reduce inflammation by astringents and, when necessary, to relieve pain by analgesics. If an antiseptic dusting powder is desired boracic acid in impalpable powder with talc may be employed; if an astringent, finely powdered oxid of zinc may be added; if a local analgesic is necessary a little extract of belladonna may be incorporated with petrolatum or other ointment base. The main reliance in any event should be to effect normal bowel movements by regulating the diet rather than by the use of purgatives; the use of warm water to insure cleanliness; the avoidance of irritation, especially that caused by friction and secretions; a mild astringent to reduce inflammation.

[Editorial Note.—During the past year advertisements of Anusol Suppositories appeared in the following medical journals:

Medical Record
Boston Medical & Surgical Journal
Woman's Medical Journal
Interstate Medical Journal
American Journal of Surgery
Medical Review of Reviews
Medical Council
New York Medical Journal
American Medicine
International Journal of Surgery
Urologic and Cutaneous Review
Critic and Guide
Journal-Lancet

Advertisements of Medeol Suppositories appeared with a good deal of regularity during the past year in the following:

Medical Record
American Medicine
International Journal of S
New York Medical Journal
edical Tir

Correspondence

"WHAT CONSTITUTES GOOD MILK?"

To the Editor:—In The Journal, Feb. 2, 1918, an editorial discusses our present methods of estimating the wholesomeness and value of grades of milk. It seems to me that this editorial does not express the views of the enlightened medical profession. It makes the statement, "We are forced to admit today that bacteria per se do not necessarily render the milk unfit for human consumption," and later, "there is very little connection between the amount of germ life in milk and the healthfulness of milk." It emphasizes this point of view by stating that the consumer has little interest in the germ content of milk except for a limited number of disease-producing forms except so far as the germ content produces souring or bad flavors. Although the writers of the article on which the editorial is founded are capable men, it should be remembered that they are not physicians and that they are interested in the dairy rather than in the infant.

As far back as 1902 and 1903, Dr. Holt and I, with a number of investigators connected with the health department, made a study of this question. We found very definitely that milk containing a few hundred thousand bacteria per cubic centimeter was usually harmful to infants in summer, and that milk containing millions of bacteria was still more harmful, and that even pasteurization did not make such a milk wholesome for infants. In cold weather and in older children, the harmful effects were absent or less noticeable.

So far as I know, all investigators since that time have come to similar conclusions. No one who has had experience claims that every variety of germ is harmful to infants; but it is impossible in ordinary commercial milk to arrange that only the harmless forms should enter it and, as a rule, the ordinary loose city milk has been shown to be harmful for infants in summer whether the milk was pasteurized or not, if the germ content was high.

The experts whose report led to the writing of the editorial were considering the best methods for grading milk and not the question as to whether excessive numbers of bacteria in market milk were wholesome or not. It would be, to my mind, a step backward to accept the views expressed in the body of the editorial.

William H. Park, M.D., New York.

[Comment.—The Journal's editorial did not take a definite stand on the question at issue, but merely presented the matter as seen in the light of the new evidence available: that presented by the experts of the American Dairy Science Association, Drs. H. A. Harding, R. S. Breed, W. A. Stocking, Jr., and E. G. Hastings. The Journal's editorial abstracted the pamphlet by these authors on "What is Meant by 'Quality' in Milk?" and concluded with the following editorial statement, by which it stands:

> In the light of what has been learned, then, good milk must exhibit several desirable qualities. It should have a high food value, of which the fat content is a good relative index, though by no means the sole criterion. It must be made safe from the standpoint of disease, and thus healthful by being produced under the competent supervision of cows and men or by being properly pasteurized. Milk ought to be clean in the sense of being reasonably free from obvious dirt. Even today it has become one of our cleanest foods. And it must be produced and handled so as to keep well. For these factors—food value, as expressed by composition; healthfulness, or elimination of dangerous contamination; cleanliness, or protection from dirt; keeping quality, as determined by care of utensils, cooling, and prompt delivery—there is a mutual responsibility on the part of producers, distributors, and even consumers.

The subject merits a scientific open discussion, and our columns are available for this purpose.—Ed.]

THE NATIONALITY OF GRAVES

To the Editor:—I wish to point out a mistake made both by Charcot and your contributor Stewart R. Roberts in the issue of The Journal which has just come to hand (Dec. 29, 1917, p. 2204). In a letter from Stewart R. Roberts he quotes Charcot, and the mistake occurs in the last few lines of a quotation from the letters of the latter. It is his reference to the nativity of the distinguished physician, Graves. Graves, as every student of medicine should know, was born in Ireland and practiced medicine all his life in Dublin, which is the capital of Ireland.

Daniel T. Sheehan, M.B., Milltown,
County Kerry, Ireland.

[Note.—Following is a brief biography of Graves from Garrison's "History of Medicine":

> Robert James Graves (1796-1853), the son of a Dublin clergyman, took his medical degree in 1818, and, while making the usual continental tour, had such adventurous experiences as being arrested as a German spy in Austria on account of his fluency as a linguist, and of successfully putting down a mutiny on board ship during a storm in the Mediterranean, afterward assuming command and saving the vessel through his pluck. Returning to Dublin in 1821, he became chief physician to the Meath Hospital and one of the founders of the Park Street School of Medicine. Here he immediately went in for the widest reforms, introducing the continental methods of clinical teaching, such as making his advanced students handle and report on clinical cases, and suppressing the maltreatment and abuse which hospital patients had to endure from the rough-spoken Irish M.D.'s of the day. Tall, dark, and *distingué*, Graves had a warm heart, in spite of his sarcastic speech, and once even did a stint of literary work for a poor student. His *Clinical Lectures* (1848), which Trousseau read and reread with highest admiration, introduced many novelties, such as the "pin-hole pupil," timing the pulse by the watch, and discarding the old lowering or antiphlogistic treatment of fevers. He requested that the phrase "He fed fevers" should be his epitaph. Graves also left early accounts of angioneurotic edema and scleroderma, and, in 1835, he published a description of exophthalmic goiter so admirable that the disease still goes by his name.]

CREATINURIA

To the Editor:—In an editorial with this title (The Journal, Dec. 29, 1917, p. 2186), the following appeared:

> Normal children, however, are now recognized to excrete creatin commonly during the period of adolescence. This was demonstrated in this country several years ago by W. C. Rose at Yale University and verified by Folin and Denis at the Harvard Medical School.

A similar statement has appeared a great many times in literature and I am, therefore, sending you herewith a reprint of my article on "Creatinin and Creatin Metabolism in Children" (The Journal, Oct. 1, 1910, p. 1178), which appeared before Rose's article. I would refer also to another reprint on the "Creatinin and Creatin Excretion in Recurrent Vomiting" (*Am. Jour. Dis. Child.*, April, 1912, p. 209).

Rose recognizes my work in his own article also.

J. P. Sedgwick, M.D., Minneapolis.

INSTRUCTIONS FOR ADVISORY BOARDS, AND THE DIAGNOSIS OF TUBERCULOSIS BY ROENTGENOLOGY

To the Editor:—The manual of instructions, recently sent to members of the medical advisory boards, on the whole is an admirable compilation. The descriptions of the various conditions likely to be met are clearly and concisely described, in places with almost the simplicity of Greek art. In contrast to this general excellence stands the Cubist or Futurist description of the roentgenoscopic examination of the lungs in tuberculosis. This reminds one of a jumble of lines and colors which the artist labels a Nude (presumably woman) Coming Down Stairs (presumably in the sunlight), but which to others appears more like a railroad wreck in a fog than anything else. This is unfortunate, because the recent scientific work, particularly of Dunham and Miller, on the interpretation of the roentgenogram shadows of tuberculous and normal lungs makes it possible to have a simple, clear, scientific description of the roentgenogram of tuberculous lungs instead of the involved, muddled and unscientific description given in the manual. Such a description would be an aid to the roentgenologists on the advisory boards who have not had much experience with the interpretation of roentgenograms of the lungs. The description given can only lead to hopeless confusion of thought if one attempts to follow it. Descriptions of roentgenograms of internal organs as complex as the lungs are worthless unless based on careful clinical, pathologic and anatomic studies in conjunction with fluoroscopy and roentgenography. For the decade to which the drafted men belong, tuberculosis is the most important disease; and the latest and most scientific work should be utilized in keeping it from the Army.

C. R. Bardeen, M.D., Madison, Wis.

THE WORK OF THE MEDICAL ADVISORY BOARDS

To the Editor:—I have seen the comment in The Journal (Feb. 23, 1918, p. 541) concerning the work of the medical advisory boards. As chairman of Board No. 3, Columbia University Group, I wish to express my appreciation of your suggestion, and hope that such recognition will be secured.

My particular board would prefer some insignia to wear and a certificate to put away in a strong box.

Henry E. Hale, M.D., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

JOURNAL ON PUBLIC HEALTH

To the Editor:—I am a member of our city board of health. We have a live city manager at the head of our city affairs, and we ask you to recommend to us the best journal of public health or city sanitation.

W. G. Hope, M.D., Albuquerque, N. M.

Answer.—A very good journal for your purpose is the *American Journal of Public Health,* the organ of the American Public Health Association. The *Journal* may be addressed at 126 Massachusetts Avenue, Boston. Other journals printing articles on public health topics are the *Journal of Infectious Diseases,* Chicago, and the *Journal of Hygiene,* University Press, Cambridge, England. Much important material on public health matters appears also in The Journal of the American Medical Association.

METHOD OF WRITING CERTAIN ABBREVIATIONS

To the Editor:—1. Is it correct to write the abbreviations $\overline{ss}$, $\overline{c}$, $\overline{s}$, $\overline{aa}$ this way, or should they be written thus: $\overset{\cdot\cdot}{\overline{ss}}$, $\overset{\cdot}{\overline{c}}$, $\overset{\cdot}{\overline{s}}$, $\overset{\cdot\cdot}{\overline{aa}}$? The latter seems absurd.

2. Does the term "s. o. s." written after an order for medication or treatment mean just once (of whatever ordered) if necessary, or does it mean just once and repeat once, or does it mean something else? From the Latin it would seem to mean one dose a time if necessary.

S. B. Blakely, M.D., Binghamton, N. Y.

Answer.—1. The terms $\overline{aa}$, $\overline{ss}$, $\overline{c}$, $\overline{s}$ and $\overset{\cdot\cdot}{\overline{aa}}$, $\overset{\cdot\cdot}{\overline{ss}}$, $\overset{\cdot}{\overline{c}}$, $\overset{\cdot}{\overline{s}}$, are usually written without the lines or dots above the letters, thus: aa, ss, etc.; aa is sometimes written āā.

2. The term s. o. s. is an abbreviation for *Si opus sit*, meaning "if necessary," "if there be occasion" or "if there be opportunity." It is sometimes abbreviated si. op. sit.

REMOVAL OF ARGYROL STAINS

To the Editor:—Please state in your "Queries and Minor Notes" Department the most satisfactory method of removing argyrol stains from linen, particularly as applied to our hospital laundry.

A. J. Guerinot, M.D., Pittsburgh.

Answer.—Argyrol stains on hands or clothing may be removed by rubbing with a salt grease, such as bacon grease, followed by soap and water. Silver stains on towels, etc., can readily be removed by the application of dilute solutions of mercuric chlorid.

POTATO AND BRAN BREAD

To the Editor:—What is the nutritional value of bread made from flour composed of potatoes, one fifth, and bran flour, four fifths, as compared to ordinary white flour bread? What would be the effect of continued use of this bread? Please do not publish name.

N. R. W.

Answer.—If one-fifth potatoes and four-fifths ground bran were used, the resulting substance could hardly be called a bread. Its nutrition value, weight for weight, would be much less than that of ordinary white bread. The continuous use of such a substance to the exclusion of other breadstuffs would in time be harmful, owing to the excessive amount of undigestible bran. This substance would lack gluten—the structural "steel work" of the bread loaf—and hence would not form a pleasing substance. On the other hand, if by bran flour our correspondent means unbleached whole wheat flour, then the nutritional value would be essentially the same, weight for weight, as that for white bread made from "patent flour." From a standpoint of health, it would probably be better than white bread. It would contain a certain, but not excessive, amount of undigestible residue, certain mineral salts, and would be further enhanced by the absence of products resulting from artificial bleaching.

HARRISON LAW REGISTRY NUMBER ON PRESCRIPTIONS

To the Editor:—Is it permissible to have the registry number under the Harrison law printed on one's prescription blank?

F. O. Young, M.D., Lexington, Ky.

Answer.—It is a good plan to have the registry number under the Harrison law printed on the prescription blank, as the law requires that the registry number, together with the physician's name and address, appear on all prescriptions containing narcotics mentioned in the narcotic law.

INSULATION OF ROENTGEN-RAY TRANSFORMER

To the Editor:—I wish you would tell me whether there is any vital reason why the roentgen-ray transformer should have the coil insulated in oil.

C. Mayfield, M.D., Hutchinson, Kan.

Answer.—The oil is the insulator. For all high tension work the coil must be oil insulated, otherwise it will short circuit and burn out. The most effective roentgen-ray work today is high tension work.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

Connecticut (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Maine: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Massachusetts: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Missouri: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Idaho April Examination

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, April 2-4, 1917. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, including 1 osteopath, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1902)	83
Northwestern University	(1913)	79
Rush Medical College (1915) 86;	(1916)	85
College of Physicians and Surgeons, Keokuk	(1873)	75
State University of Iowa College of Med.	(1903)	81
Jefferson Medical College	(1914)	84
University of Pennsylvania	(1914)	87
Sewanee Medical College	(1909)	82

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1912)	Utah
Ensworth Medical College	(1900)	Utah
John A. Creighton Medical College	(1914)	Utah
Columbia University	(1916)	Utah
Jefferson Medical College	(1908)	Utah

Massachusetts September Examination

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, Sept. 11-13, 1917. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 42 candidates examined, 22, including 3 osteopaths, passed, and 20, including 13 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1913)	80
Johns Hopkins University	(1912) 78;	(1915)	83.5
University of Maryland		(1914)	79.3
Boston University		(1917)	75, 76.9
College of Physicians and Surgeons, Boston		(1917)	75, 79.7
Harvard University	(1915) 79.4;	(1917)	81.1, 81.4
Tufts College Medical School	(1910) 75;	(1917)	76, 78.9
Missouri Medical College		(1879)	79.2
Eclectic Medical Institute		(1903)	75
University of Vermont		(1917)	79
Queen's University		(1915)	75
McGill University		(1908)	84.9
	FAILED		
Howard University		(1916)	70.4
Maryland College of Eclectic Med. and Surg		(1914)	70.5
Maryland Medical College		(1913)	60.9
University of Maryland		(1917)	73
College of Physicians and Surgeons, Boston		(1917)	68
University of West Tennessee		(1916)	62.2
University of Naples		(1912)	72.9

Nebraska May-June and July Examinations

Dr. Joseph J. Hompes, secretary of the Nebraska State Board of Examiners, reports the oral, practical and written examinations held at Lincoln, May 31-June 1, and July 2, 1917. The examinations covered 13 subjects. An average of 70 per cent. was required to pass. Fifty-nine candidates were examined, all of whom passed. Eight candidates were granted reregistration certificates. Twenty-eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Medical College of the Pacific		(1916)	76.5
Chicago College of Medicine and Surgery		(1916)	82.7
Baltimore University		(1902)	84.6
Cotner University		(1914)	77.9

John A. Creighton Medical College (1901) 81.6, 82.9; (1902) 81.7; (1917) 76.5, 77.7, 78.2, 78.7, 79.1, 79.7, 79.7, 79.7, 80.2, 80.2, 80.5, 80.7, 80.9, 81, 81.6, 81.9, 81.9, 81.9, 82.5, 82,6, 82.6, 82.7, 83, 83.2, 83.2, 83.4, 84.6, 85.4, 86, 87.9, 87.9, *.
Lincoln Medical College....(1898) 80.4; (1917) 81.5, 83.5, 84.6, 86.4
University of Nebraska (†) 80.4; (1917) 79.6, 80.5, 80.9, 81.4, 82, 82.1, 82.4, 82.9, 83.2, 83.4, 83.7, 84.7, 85, 85.9.

* No grade given,
† Work completed; will receive diploma later.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons		(1902)	Mississippi
Loyola University		(1916)	Illinois
College of P. and S., Chicago	(1910) Illinois;	(1915)	Iowa
Rush Medical College	(1906)	(1915)	Illinois
State University of Iowa Coll. of Medicine		(1910)	Iowa
University of Louisville		(1907)	Mississippi
Tulane University of Louisiana	(1888) (1891)	(1910)	Mississippi
Eclectic Medical University		(1917, 2)	Arkansas
St. Louis University		(1916)	Missouri
University Medical College of Kansas City		(1913)	Kansas
Washington University		(1906)	Illinois
Jefferson Medical College	(1895) Missouri;	(1904)	Mississippi
Memphis Hospital Medical College (1888) (1899) (1901) (1903) (1905, 2) Mississippi.			
Sewanee Medical College		(1900)	Mississippi
University of Nashville	(1906)	(1908)	Mississippi
University of Virginia		(1894)	Mississippi

Missouri December Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at St. Louis, Dec. 17-19, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 31 candidates examined, 23 passed and 8 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1916) 83.5;	(1917)	82.1
Chicago College of Medicine and Surgery		(1917)	82.1
Loyola University		(1916)	76.2
University of Illinois		(1916)	86.4
Hospital College of Medicine		(1906)	73
Johns Hopkins University		(1917)	85.6
Boston University		(1917)	80.5
American Medical College		(1901)	75
Beaumont Hospital Medical College		(1887)	75
Kansas City Hahnemann Medical College		(1915)	87.3
St. Louis College of P. & S.	(1905) 75, 75;	(1909)	75
St. Louis University	(1904) 83.2;	(1917)	79.5, 85.1
Columbia University		(1903)	82.1
Meharry Medical College	(1915) 75; (1916) 84.9;	(1917)	75, 75.1, 83.5
	FAILED		
Meharry Medical College	(1916) 61.8, 69.3, 72.5;	(1917)	57.1, 64.3
University of West Tennessee		(1915)	57.4, 68.1, 73.5

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1897)	Indiana
Drake University		(1908)	Iowa
University of Kansas	(1910)	(1916)	Kansas
Kentucky University		(1904)	Virginia
Louisville Medical College		(1907)	Penna.
University of Maryland		(1916)	Maryland
University of Michigan Medical School		(1902)	Iowa
St. Louis College of Physicians and Surgeons		(1915)	Tennessee
Eclectic Medical Institute		(1903)	Indiana
Meharry Medical College		(1916)	Tennessee
University of Tennessee		(1901)	Kentucky
Vanderbilt University		(1912)	Kentucky

Nebraska November Examination

Dr. J. J. Hompes, secretary of the Nebraska State Board of Health, reports the oral, practical and written examination held at Lincoln, Nov. 14-15, 1917. The examination covered 11 subjects. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Seven candidates were licensed through reciprocity, and 1 candidate was granted a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1917)	87
Sioux City College of Medicine		(1901)	82
Boston University		(1917)	86
Jefferson Medical College		(1916)	82

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago		(1883)	Iowa
Chicago College of Medicine and Surgery		(1917)	Illinois
State University of Iowa Coll. of Homeo. Med.		(1909)	Colorado
Kansas Medical College		(1906)	Kansas
Harvard University		(1909)	Mass.
Dartmouth Medical School		(1909)	Mass.
Eclectic Medical College		(1896)	Missouri

Ohio Reciprocity Report

Dr. Herbert M. Platter, secretary of the Ohio State Medical Board, reports that 15 candidates were licensed through reciprocity at the meeting held Oct. 2, 1917. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1913)	Illinois
Medical College of Indiana		(1903)	Illinois
Tulane University		(1916)	Texas
Bowdoin Medical College		(1916)	Maine
University of Michigan Med. School	(1897) (1915)	(1916)	Michigan
		(1902)	Vermont
University and Bellevue Hosp. Med. Coll.		(1909)	New York
Jefferson Medical College		(1903)	Penna.
University of Pittsburgh		(1912)	Penna.
Texas Medical College and Hospital		(1881)	Texas
University of Vermont		(1898)	Vermont
University of Virginia		(1911)	Virginia
University of Naples		(1891)	New York

New Mexico October Examination

Dr. R. K. McClanahan, secretary of the New Mexico State Board of Medical Examiners, reports that 18 candidates were licensed on satisfactory credentials at the examination held at Sante Fe, Oct. 9-10, 1917. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
University of Alabama		(1910)	1
Yale University		(1912)	1
College of Physicians and Surgeons, Chicago		(1910)	1
Hahnemann Med. Coll. and Hosp. of Chicago		(1914)	1
Rush Medical College		(1914)	1
University of Louisville		(1892)	1
Tulane University of Louisiana		(1905)	1
College of Physicians and Surgeons, Baltimore		(1910)	1
St. Louis College of Physicians and Surgeons		(1904)	1
Syracuse University		(1916)	1
Jefferson Medical College		(1907)	1
University of Pennsylvania		(1900)	1
University of Pittsburgh		(1911)	1
University of Tennessee		(1916)	2
Fort Worth School of Medicine		(1906)	1
Milwaukee Medical College		(1912)	1
Kings Queens College of Physicians, Ireland		(1888)	1

Book Notices

Military Ophthalmic Surgery. By Allen Greenwood, M.D., Major, M. R. C., U. S. Army. Including a Chapter on Trachoma and Other Contagious Conjunctival Diseases by G. E. de Schweinitz, M.D., Major, M. R. C., U. S. Army; and a Chapter on Ocular Malingering by Walter R. Parker, M.D., Major, M. R. C., U. S. Army. Medical War Manual No. 3, Authorized by the Secretary of War and Under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, $1.50. Pp. 115, with 16 illustrations. Philadelphia: Lea & Febiger, 1917.

This booklet contains three articles: the first, a general article on ophthalmic surgery, by Dr. Allen Greenwood; on trachoma and the common forms of conjunctivitis, by Dr. C. E. de Schweinitz; and the third, on the examination of malingerers, by Dr. Walter R. Parker.

Dr. Greenwood points out that 10 per cent. of the injured coming to a base hospital require some immediate examination or treatment of the eyes or surrounding structures. The most common conditions encountered are contusions and wounds of the eyeball. Less common are traumatic cataracts. In the way of prophylaxis, he believes that shields covering the eyes and temples should be of service if the soldiers will wear them. One of these has been designed by Dr. W. H. Wilmer, of Washington, at the request of the Ordnance Department. He suggests also that each base hospital be equipped to do refractions, and gives a list of eye instruments for an Army case for use in base hospitals. In an appendix he gives six indications for enucleation and four indications for evisceration. This material occupies about fifty-two pages of the small manual.

The article by Dr. de Schweinitz on trachoma and common forms of conjunctivitis occupies forty-six pages. It is illustrated with five colored plates as well as black and white pictures.

Parker's article on malingerers occupies eight pages. He enumerates the equipment necessary for complete examinations, and describes the methods of utilizing it for this purpose. A final appendix lists diseases of the eye and adnexa, eye injuries and eye operations.

This manual contains valuable material. But considering the object for which it was prepared, it should be available at at most one half its cost.

Problems of Mysticism and Its Symbolism. By Dr. Herbert Silberer. Translated by Smith Ely Jelliffe, M.D., Ph.D. Cloth. Price, $3 net. Pp. 451. New York: Moffat, Yard & Co., 1917.

The reason for translating this work, according to Jelliffe, is to show the essential relationships of what is found in the unconscious of present-day mankind to many forms of thinking of the middle ages. We thus arrive at a science that may be called paleopsychology. "Its fossils are the thought-forms throughout the ages, and such a science seeks to show fundamental likenesses behind the more superficial dissimilarities." The parable with which the author introduces his work is taken from a Rosicrucian work of the sixteenth century. This parable the author submits to a psychanalytic interpretation, regarding it as a dream or fairy tale, and endeavoring to interpret what it symbolizes. In this analysis he evidences a vast amount of ingenuity and undoubtedly goes as far in his interpretations as any of the believers in the symbolistic phases of Freud's theories. It is, of course, possible, and this must always be kept in mind, that the writer of the parable had no unconscious conception such as the author believes underlies his parable. Perhaps the only way to find this out would be to adopt the plan suggested for determining the famous Shakespeare-Bacon controversy. After a certain notoriously bad actor had played the part of Hamlet, it was suggested that the graves of the two be opened, and the one who had turned over during the night was the one who wrote the play. But the author's interpretation of the parable is undoubtedly quite convincing, and if our ancient hermit or Rosicrucian turned over, it was probably in shame at this public revelation of his hidden sexual thoughts.

Dr. Silberer then discusses alchemy, the hermetic art, Rosicrucianism and multiple interpretation. Particularly interesting is his tracing of the development of the order of free masonry from the Rosicrucianism of the middle ages, and here again his analysis of symbols, as shown in the writings and work of these organizations, is fascinating and quite convincing.

The final section of the work is devoted to introversion and regeneration. It is here that the author traces the development of thought and expression in the individual. It was shown that the imagination evinces a predilection for symbolic forms of expression. The term "introversion," coined by Jung, signifies the withdrawal of interest from the outer world and the development of interest and pleasure within one's own thoughts. There are, of course, certain neuroses in which this tendency is greatly exaggerated. This introversion is continually connected with regression, that is, the thinker harks back from thinking to gazing, from doing to hallucinating, from the pleasures of the adult to the pleasures of childhood. With this comes the desire for symbolic forms of expression and mysticism.

Now all of this is very complicated; and yet it may have a very definite relation to the study and treatment of human disease and to a more complete understanding of the human mind and its products. The single fact that the development of free masonry with its tremendous symbolism has captivated millions of men, including thousands of those who have been called great, is evidence of the importance of these factors in human life.

Virginia Health Bulletin, 1916. Volume 8. Annual Report of State Board of Health. Cloth. 1916.

The report of the state board of health and of the health commissioner are bound in one volume with the twelve monthly numbers of the *Health Bulletin*. The report for the year 1916 has been distributed and shows gratifying progress in all matters pertaining to health conditions, under a good organization working along modern lines of health conservation and disease prevention.

The monthly *Health Bulletin* and *Almanac* is prepared for the benefit of the laity as well as for the local health officers and the physicians of the state of Virginia, and it contains much educational and other interesting matter pertaining to wholesome living and the prevention of disease, news of the progress of health legislation and administration, reports on vital statistics, and a variety of information regarding the home, the school and the farm. The annual report of the state health board and its various officers shows a smooth working organization giving attention to all the features of a modern health machine, such as vital and morbidity statistics, publicity, school nursing, visiting and industrial nursing, sanitary engineering, water supply, malaria and hookworm prevention, laboratory work, and sanatorium treatment of tuberculosis.

Physical Diagnosis. By W. D. Rose, M.D., Lecturer on Physical Diagnosis in the Medical Department of the University of Arkansas. Cloth. Price, $4. Pp. 499, with 294 illustrations. St. Louis: C. V. Mosby Company, 1917.

The brief review of the clinical symptoms and pathology that precedes the description of the physical signs and diagnosis of the various diseases will make this volume of special value for constant reference by the general practitioner. A short description of the symptoms and pathologic features placed side by side with a discussion of the physical signs enables one more readily to understand the significance of one's observations when making a clinical examination. In a chapter devoted to an explanation of the blood pressure, the technic of applying the tests is explained, and the diagnostic importance of the results secured is carefully described. The illustrations effectively supplement the descriptions given in the text; but the fact that a large proportion are copied from other authors detracts from the originality of the volume. The Bárány tests for localizing intracranial lesions are given in condensed and practical form. The systematic tables showing the clinical facts on which these equilibrium tests are based are particularly instructive.

Three Clinical Studies in Tuberculous Predisposition. By W. C. Rivers, M.R.C.S., D.P.H., Tuberculosis Officer, Barnsley District, West Riding, Yorks. Cloth. Price, 12 shillings 6 pence net. Pp. 272, with illustrations. London: George Allen & Unwin, 1917.

In 1904, the author noticed a consumptive who gave a history of having nasal obstruction; further observation of other cases gave rise to the generalization that nasal obstruction is a contributory cause of tuberculosis of the lungs. Three years later he noticed a few ichthyotics among his consumptives, and later still, a few cases of squint. He has noted that ichthyosis and nasal obstruction are overfrequent in connection with surgical tuberculosis, but is not so sure that the same relation obtains in reference to squint and tuberculosis. He reports twenty-three cases of ichthyosis out of 1,600 consumptives, besides quoting cases of Tommasolli, Lewin, Garkoin, Du Mesnil and others. He concludes that the existence of ichthyosis may conduce to the acquisition of tuberculosis. This study, while not convincing, is interesting and should direct the attention of phthisiologists to the skin conditions present in their patients; for the skin picture is all too often slurred over during inspection. Rivers observed six cases of squint in 500 consumptives. In this connection, he goes into left-handedness, mentions idiocy and neurotic tendencies, and closes with the statement that "there is undoubted association between tuberculosis and concomitant strabismus, of predisposition to which latter disease squint forms a sign." One should not forget that a group of patients exhibiting strabismus, left-handedness, ambidexterity and other stigmata of degeneracy plus poverty might well be expected to show a high percentage of tuberculosis. It would appear that the author has spent unnecessary effort in trying to establish the relation referred to above. In the section on consumption and nasal abnormality are presented numerous citations to show that pulmonary tuberculosis and nasal defects are closely related, with the latter as causal factors, not excluding perforation of the septum. When, as the author shows, nasal obstruction produces mouth breathing and thus facilitates tuberculous infection, no one will take issue with him. Among the conclusions, to which forty-eight pages are devoted, Rivers states that when the lungs do not yield characteristic signs and symptoms, the presumption of tubercle must be strengthened a good deal in the presence of consumptive predisposition. The reader cannot help feeling that the matters in this book might have been presented with more regard for brevity.

The Treatment of Infantile Paralysis. By Robert W. Lovett, M.D., John B. and Buckminster Brown Professor of Orthopedic Surgery, Harvard Medical School. Second Edition. Cloth. Price, $1.75. Pp. 175, with 123 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This book presents a subject to which the author has devoted more than the usual amount of study. A preliminary chapter on the pathology, symptoms, etc., is followed by four chapters on treatment, one on muscle training, and a final chapter on the author's spring balance muscle test. In his discussion of the serum treatment, Dr. Lovett limits himself to the use of convalescent serum, and makes no mention of the serums made by Rosenow and Nuzum from the streptococci that they found in this disease. The book is almost wholly orthopedic in character, discussing the various measures for restoring function to the disabled parts.

Surgical Nursing in War. By Elizabeth R. Bundy, M.D., Member of the Medical Staff, Woman's Hospital, Philadelphia. Cloth. Price, 75 cents. Pp. 184, with 37 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

This little manual is especially planned for the graduate nurse, who, of necessity, must become a guide to inexperienced co-workers in times of emergency, because of the many untrained nurses employed in the large base hospitals of the war zone. Much attention is paid to wounds made by the various missiles of modern warfare, so that the nurse may differentiate among those caused by pointed bullets, shrapnel, high explosive shells, bombs, hand grenades, and the like. It is questionable as to just how much of this nurses will require. In a well planned chapter on surgical dressings, the Dakin-Carrel method of treating wounds is set forth with great clearness and illustrated with drawings of the Carrel instillation apparatus. The nurse is instructed in the emergency measures to be carried out in cases of threatened gangrene and severe shock, and in the administration of tetanus antitoxin. Civilian nurses who are preparing for war service will find much that is helpful in the chapter on mechanical appliances, in which the various modern types of splints and bandages are described in detail, with special emphasis on the nurse's part in the setting of bone fractures.

A comprehensive chapter on bone injuries completes the discussion of this important subject.

Social Medicine, Medical Economics and Miscellany

Science and the Hours of Work

The application of science to the industries has been responsible for many of the advances of recent decades. The chief of these, says Frederic S. Lee (*Public Health Reports*, Jan. 11, 1918) have been mechanical engineering, which has invented and developed automatic machinery; and chemistry, which has discovered new chemical substances and new chemical processes. In industrial work on the physical side, the human equation has not yet been eliminated; but in this regard much improvement can be made by scientific attention to industrial physiology, as Lee calls it. The human machine, unlike the machine of steel and iron, is subject to the limitation of fatigue, which delays work, diminishes output, spoils goods, causes accidents and sickness, keeps workers at home, and thus is an obstacle to efficiency. How fatigue can be kept down, and the individual maintained so as to produce the maximum of output, is the great industrial problem. This problem has been studied, more particularly since the beginning of the world war, in Great Britain by the Health of Munition Workers Committee and in America by the Committee on Industrial Fatigue of the Advisory Commission of the Council of National Defense.

It has been found both from physiologic experiments and from careful observation of actual work that the greatest amount of work is not performed at the beginning of the working period, but the curve at first gradually rises to a maximum, indicating for a time a progressive improvement in working power. Following the maximum there is a gradual, slow decline in the curve, indicating fatigue, which may continue, in the case of the experimental muscle, to complete exhaustion. While in the human being the physiologic conditions are infinitely more complicated than in the single muscle, yet the curve of output closely resembles the muscle curve in work that requires close attention and exact muscle coordination. There is at first a gradual rise, continuing through the first hour or two, and then a fall, gradually increasing throughout the remainder of the working spell. After the luncheon hour, which provides rest and food, the curve repeats itself, and the lower point of the curve at the end of the second period, when compared with that at the end of the first period, signifies the cumulative fatigue of the day. The rise in the curve of each spell is often called the "practice effect." In occupations distinguished by their muscular character, the output curve seems to show progressive fatigue. Where work is monotonous and frequently broken by natural pauses a curve may be obtained which for both working spells is nearly straight, showing a slight practice effect, but no fatigue. The American committee found another type of output in which the total daily production of the individual from day to day and from week to week shows a striking uniformity. The inference is that the workers are not working to their full capacity. Individual curves sometimes show a marked spurt before the close of the spell, evidently intended to make for a certain production before closing time. To what extent fatigue enters into work in which this type of curve is found is a subject, Lee says, for further study. The point in the study has not yet been reached when it can be said which curves of output represent the ideal. Experiment is needed. A genuine, pronounced fatigue fall in the curve indicates cessation of work. In England in the beginning of the war the feverish haste, the lengthening of the daily schedule of labor, the overtime and Sunday work, all soon produced a condition of excessive fatigue. In America a closer adherence to established custom and to the legal hours for labor in most factories has so far apparently prevented the appearance of conditions of excessive fatigue. The American committee discovered that in one large munition factory on a night shift of twelve hours, after 5 a. m. the curve of output showed a rapid decline, and during the last forty minutes there was very little or absolutely no production. Evidence collected by the British committee in specific instances showed in one that a reduction of twenty hours in the weekly working time resulted in an actual increase of 9 per cent. in output, and a reduction of the hours in another instance from 58.2 to 51.2 resulted in an increase of 21 per cent. in the output.

The conclusions, as given by Lee, are that the interest of large output requires keeping the hours down to what experience has shown to be a reasonable limit, and choosing this limit in accordance with the fatiguing effects of the different specific occupations; that recess periods should be introduced into long spells; that Sunday labor should be omitted, and that overtime in emergencies should be compensated by free time later; that each worker has a rhythm best adapted to his own human machine, and it is advantageous to place in squads doing specific tasks workers having similar rhythms, eliminating faster and slower individuals, and then adjusting the speed to the common rate.

New Food Products

Recent *Commerce Reports* contain information concerning new fishes and other food products, the use of which, as foods, is being encouraged by government authorities. Economic Circular 32 of the U. S. Bureau of Fisheries, issued October 10, urges the greater use of whiting as a good food fish that is not adequately utilized. It is said that if consumers would make inquiries for this fish, either fresh, frozen, canned, salted or smoked, it would encourage dealers to stock it. Numerous recipes for cooking whiting are given in the circular.

During the summer of 1916 in the laboratories of the Bureau of Fisheries at Woods Hole, Mass., the use of shark flesh for food was tried. It is said that six species of sharks, including the sand shark, have been tested as foods, the meats having been eaten by about fifty persons. The meats of these species were pronounced not only good, but especially pleasing in flavor and texture. Methods of smoking and salting have been worked out. Shark meat, it is said, is best salted dry, since in any wet process it has a tendency to develop a disagreeable ammonia smell. Not having a great amount of oil, shark meat is not an ideal meat for smoking. When a light smoke is applied for about three days, shark meat makes an agreeable product which is said to keep well.

The *Fisheries Bulletin* for June, 1917, has an article on the use of whale meat as food. Porpoises and dolphins have also been recommended as important sources of human food. In May, 1917, fresh whale meat was on sale in Seattle, and whale steaks were served in hotels and restaurants in that city. The Pacific Whaling Company at Grays Harbor, Washington, finds a ready market for whale meat. In San Francisco, whale meat was on sale in August at 22½ cents a pound. It was being served in the leading hotels. The meat has also been placed on the market canned, in which form it was sold at the time of the report at from 10 to 15 cents a pound.

The U. S. Bureau of Fisheries has sent representatives into the South Atlantic gulf states in an effort to increase the production and consumption of smoked fish. These representatives are equipped with a small portable smoke house of recent design, and are prepared to instruct persons desiring to develop the smoked fish industry. They are giving special attention to the smoking of menhaden, sharks, and other species common to this region. Smoked shrimps have been found to be especially palatable.

In British Columbia, the canning of evaporated vegetables is becoming a considerable industry. The product of one concern called "Julienne mixture," six vegetables all canned together, consists of first quality carrots, turnips, potatoes, onions, peas and beans. The vegetables are evaporated separately, after being properly prepared, as each requires a different degree of heat in its evaporation. They are packed in tins containing 15 pounds, various proportions of the different vegetables being included in each tin. Large contracts for Army use have been filled, and it is said that not a single can of the product has been thrown out by the British inspector at Montreal.

The Department of Agriculture of Trinidad, British West Indies, has published a bulletin on the use for bread making of various meals made from products of the tropics, such as bananas, plantains, tannias, dasheens, sweet potatoes, yams and breadfruit. All the meals, it is said, can be readily prepared in any household without the use of expensive machinery at a cost of from 1½ to 2½ cents a pound in small quantities. Tests show that all the meals excepting breadfruit meal make a palatable bread when mixed with equal parts of wheat flour. Two parts of the meal may be used to one part of flour, but this makes a darker and heavier bread. Bread can be made with all of these meals with yeast or baking powder, but difficulty is sometimes experienced with yeast. Banana meal is recommended as being probably the one that will be most generally used and the cheapest to produce. A bread made from sweet potato flour is said to be perhaps the best, the bread being light brown, of a pleasant, sweet flavor, and very light.

Wood Alcohol

Dangers in the manufacture and use of wood alcohol are set forth in a special Bulletin 88 of the New York Department of Labor, December, 1917, prepared by the Division of Industrial Hygiene. In New York there are twenty-eight establishments for the manufacture of wood alcohol, employing 400 persons. Many of the stills are of rather crude construction, and in a number of them the processes are not well guarded, so that poisoning and accidents in the way of explosions and fires occur. As is known, blindness and death occur from inhaling the fumes of wood alcohol, and symptoms and physical deterioration of less extreme degree occur among the workers, including headaches, dizziness, conjunctivitis and dematoses, both among the employees in the stills and among those in industries employing wood alcohol. Among the latter are breweries, where the alcohol is used in varnishing the interior of vats, and from which a considerable number of deaths have occurred in New York, according to the bulletin; hat manufacturing, in which the alcohol is used in shellac for stiffening frames, artificial flowers, etc.; pencil manufacturing, furniture varnishing, picture frame factories, and in the manufactories of varnishes, in all of which industries the alcohol is used for the most part in dissolving the gums and shellacs in varnishes. In some industries, ethyl alcohol denatured with wood alcohol is used; but this product, if it contains as much as 5 per cent. of wood alcohol, is as dangerous as the wood alcohol itself. A number of cases of poisoning, with death, blindness and other disability, are set forth in the report. Rules proposed by the department for eliminating the dangers of handling wood alcohol are proper provision for ventilation in factories in which wood alcohol fumes exist to the extent of 1 part in 10,000 volumes of air; the labeling of all receptacles containing wood alcohol, calling attention to its poisonous nature; in processes requiring contact of the hands with the alcohol, the use of impervious gloves, to be furnished and kept in good condition by the proprietors; gas helmets for use in entering stills, retorts or brewery vats, etc., with fresh air supplied through a hose; and the posting of printed signs in factories and work rooms, calling attention to its dangerous nature.

Medicolegal

Catching of Nerve in Fracture—Evidence—Failing to Use Roentgen-Ray Machine

(Ingwersen vs. Carr & Brannon et al. (Ia.), 164 N. W. R. 217)

The Supreme Court of Iowa, in reversing a judgment obtained by the plaintiff and remanding this cause for a new trial, says that the petition alleged that the plaintiff sustained a fracture of his left arm, the humerus being broken at the juncture of the upper and middle thirds, and the broken ends of the bone being so separated and not in apposition that the musculospiral nerve was drawn in between the pieces of bone. There was evidence that, to show the plaintiff's daughter where the break was, the defendant then in attendance, who had given the plaintiff an anesthetic, raised the arm on a level with the shoulder, then straightened out the arm, and applied splints and a bandage. The plaintiff's theory was that the oblique fracture of the humerus involved the musculospiral groove, containing the nerve, and that when the defendant manipulated the arm, and bent it at the point where it was broken, the nerve slipped in and was caught when the two pieces of bone closed up, and that it was negligence to fail to find out that the nerve was caught before the splints and bandage were applied, which should have been done by the getting of crepitus. For the defendants there was evidence which tended to show that crepitus was obtained, the fracture reduced, temporary splints applied, the forearm and hand placed in a sling, and the arm encased in a muslin swath extending around the body. The defendants contended that the plaintiff had two injuries—the fractured humerus and an injury to the nerves; that they treated the fractured humerus and treated the nerve expectantly; that is, waited to give Nature a chance to clear up the paralysis without surgical interference, relying on Nature to clear up the injury to the nerve. The discovery of the musculospiral nerve between the broken ends of the bone was made by another surgeon, who cut down on the fracture something like eight weeks after that was sustained, and the defendants contended that the fact that the nerve was between the broken fragments of the bone then did not tend to prove that it was there two months before, when the arm was first dressed by the defendants; that presumptions do not relate backward. But the court thinks there were circumstances which tended to show, and from which the jury could have found, that the nerve was caught prior to or at the time of the defendants' first visit. There was a conflict in the testimony which made this a jury question.

The jury was instructed that it was not to take for granted that the statements contained in the hypothetic questions were true, but that it should scrutinize the evidence and determine what, if any, averments were true, and that if it should find that some of the material statements were not correct and were of such a character as entirely to destroy the reliability of opinions based on the hypothesis stated, it might attach no weight whatever to the opinions based thereon; that an opinion based on a hypothesis wholly incorrectly assumed, or incorrect in its material facts, and to such an extent as to impair the value of the opinion, is of little or no value. It was contended that the jury should not be permitted to determine the materiality of assumed facts incorporated in hypothetic questions; that the materiality of such facts is a question to be determined by the court; and the supreme court holds that it was for the error in this instruction that the case must be reversed.

It was also error not to permit the defendant who performed the most of the services in the treatment of the plaintiff to be asked as to whether the best of his professional ability was brought to bear on the case; whether or not he exercised his best skill and knowledge in the treatment of the case; and what was the fact about his having exercised the utmost good faith as well as his best skill and ability in the treatment of this case. These questions were not leading or suggestive, nor did they call for the conclusion of the witness.

There was no error in admitting evidence as to there being roentgen-ray machines in the town in which the defendants were practicing that were available to them. That they did not use a roentgen-ray machine was a circumstance to be considered by the jury as bearing on the question as to whether they failed to use ordinary care to discover that the nerve was caught.

Prohibiting Public Gatherings to Prevent the Spread of Disease

(Community Chautauquas, Inc., vs. Caverly et al. (U. S.), 244 Fed. R. 893)

The United States District Court in Vermont dissolves a restraining order, and denies a preliminary injunction in this action to restrain the enforcement of an order of the board of health of the state of Vermont, dated July 17, 1917, directing that "no fairs, Chautauquas, street carnivals or circuses be held in the state of Vermont until further notice." The plaintiff, which owned and gave that form of entertainment known as a Chautauqua, and had a large number of contracts to give such entertainments in Vermont during the summer season of 1917, asked that the defendants, who were all of the health officers in the state in regions in which it was intended to hold Chautauquas, be restrained from making or enforcing any order designed to prevent the performance of such contracts. It was admitted that the reason for the order in question was, as set forth therein, a belief that "large general gatherings of people . . . have distributed" the infection of infantile paralysis. But the plaintiff complained that the order unjustly discriminated against it and its entertainments, for public gatherings induced by an intellectual entertainment such as a Chautauqua do not tend to spread infection, and that such is the opinion of some physicians.

Thus, the court says, the question primarily presented was whether the professional opinion of a board of physicians, honestly exercised, should be overturned by the chancellor on the ground that it was "unreasonable." Undoubtedly there are cases wherein police regulations cannot be held justifiable unless there are reasonable grounds for a belief that the necessary protection of the public health requires their passage. This is a simple doctrine, and means no more than that it is the duty of the court to examine into the facts of every case, and if a responsible, honest and presumably reasonable body of professional opinion is found on the side of the regulation, it is the duty of the court to uphold it, even though the chancellor should entertain the view of professional dissidents. The point is not whether the court agrees with the professional conclusion of a body of physicians, or engineers, or clergymen, but whether it is evident that the professional view is a reasonable view for men of the proper profession to entertain. They may be wrong, but is there any reasonable probability of their being right? If that question is answered in the affirmative, the professional regulation cannot be said to be unreasonable, as a matter of law. The court, therefore, is not called on to come to any conclusion whether the propagation of poliomyelitis is actually assisted by crowds; but it is persuaded that (1) a very responsible body of professional opinion is that way; (2) the Vermont board of health shares that view; (3) it has just as much right to entertain that view as the court has to entertain an opinion on a point of law, and (4) such a point of view cannot be held to be unreasonable.

That the prevention of disease, or its spread, by any means based on responsible medical opinion is a competent and constitutional exercise of police power is a proposition so plain as scarcely to require citation. And that the board of health acted within its statutory authority is plain from Chapter 194, Vermont Laws of 1917, which explicitly authorizes local health officers to forbid and prevent the assembling of people in any place, when the state board of health deems that the public health and safety so demand. This is not a delegation of lawmaking authority; for the assembly laid down the law, but intrusted its application to medical men who would presumably be better informed as to local conditions. No constitutional rights of the plaintiff were invaded.

Therefore the application cannot be granted, a result the more willingly reached because the papers presented (especially the results of poliomyelitis observations in Vermont for some years past) conclusively show to the court that the moves of this mysterious disease are so little understood that any honest medical efforts to effect its extermination should meet assistance rather than hostility.

Jurisdiction of Prosecutions for Illegal Practice of Medicine

(State vs. Amsden (Ore.), 166 Pac. R. 942)

The Supreme Court of Oregon affirms a judgment sustaining a demurrer to the charge against the defendant of practicing medicine without a license, on the ground that the circuit court did not have original concurrent jurisdiction of the subject-matter of the action, inasmuch as the statute regulating the practice of medicine and surgery provides that justices of the peace and the respective municipal courts shall have jurisdiction of violations of the provisions of this act. The court says that the amendment of the statute in 1895, giving inferior courts jurisdiction of alleged violations of the act regulating the practice of medicine and surgery, was probably induced by the fact that, in some of the counties of the state where terms of the circuit court were held only biennially, unlicensed persons pretending to be practitioners of medicine would pursue their assumed vocation in some village or hamlet until the grand jury convened, when the pseudodoctors would suddenly leave and seek other fields for exploitation. In order to prevent such illegal practice and speedily to convict and punish persons for violating the provisions of the act, the legislative assembly altered the statute and conferred on justices' courts and municipal tribunals jurisdiction of such offenses.

Interest on Physician's Account from Verdict Only

(Gearhart vs. Hyde (S. D.), 164 N. W. R. 58)

The Supreme Court of South Dakota holds that ordinarily interest is not allowable on a physician and surgeon's account, except from date of verdict. The court says that this action was brought to recover on an account the value of certain services performed by the plaintiff as a physician and surgeon in treating and caring for a minor son of the defendant, who had received an injury by coming into contact with an electric light wire. The plaintiff alleged that such services were performed on the express request of the defendant, and were reasonably worth $9,400. The defendant admitted that the services were performed on his request, and alleged that they were worth not to exceed $350. The account was closed, Dec. 9, 1912, that being the date when the plaintiff ceased performing professional services under the contract. The jury was instructed that the plaintiff was entitled to recover interest at the rate of 7 per cent. per annum from Dec. 9, 1912, to the date of the verdict, on whatever amount they should determine was due him, and they allowed him $2,600 as the value of his services, and $491.40 interest. The supreme court holds that the giving of this instruction was error, and that the plaintiff should be allowed only the $2,600, with interest thereon from Aug. 21, 1915, the date of the verdict.

Ordinarily, under the provisions of the Civil Code of South Dakota, money due and payable on an account draws interest from the date of the ascertainment of the balance or amount payable thereon. In many jurisdictions it seems to be held that when the value of the services, or other subject of account, is readily ascertainable by either party by resort to well known and fixed standards of customary or market values, such an account will draw interest from the time that the amount payable thereon should have been ascertained and paid; but when the value of the services performed, or other subject of account, is of such a nature and character as not to be susceptible of ascertainment by computation, or by reference to well known standards of market values, the plaintiff is not entitled to interest prior to the verdict.

This court is of the opinion that the character of the services performed by the plaintiff in this case was of such a nature that the value thereof was not susceptible of ascertainment by computation, or by reference to well known standards of value, and that, therefore, no interest could accrue on the plaintiff's claim until the amount had been ascertained by a jury, or by an accord between the parties. In such cases the criterion or test as to whether interest will run or not, prior to the verdict, is not to be determined alone from the fact that the parties have been unable to agree on the amount payable. Neither should a defendant be relieved from paying interest by reason of the fact alone that the plaintiff made too large a demand. But the true test is whether or not the balance or amount payable can be readily ascertained by resort to standard or customary market values. This case clearly falls within the class in which interest is not allowable prior to the verdict, except by accord between the parties.

Not Practicing Medicine

(Martin vs. Commonwealth (Va.), 93 S. E. R. 623)

The Supreme Court of Appeals of Virginia reverses a judgment of conviction of defendant Martin of practicing medicine without first having procured a certificate from the board of medical examiners. The court says that the essential facts were these: The accused was graduated from a Kansas school with the degree of "Doctor of Optometry." In March, 1912, he obtained for himself and his associates a charter of incorporation under the name of "Dr. Harry Martin, Incorporated." The principal office of the corporation was located in the city of Roanoke, and its chief business was manufacturing and dealing in optical goods. The accused, at the time of the prosecution, was a nonitinerant optician engaged in the practice of optometry, and had been so employed since the year 1884. He had the following display letters on the front door and windows of his place of business: "Dr. J. Harry Martin, Incorporated, Eyes Exclusively," and "Dr. J. Harry Martin, Incorporated, Optometrist." It did not appear that he had ever practiced or offered to practice medicine or surgery, either in the city of Roanoke or elsewhere. On this evidence the trial court, over the objection of the accused, instructed the jury that, if they believed from the evidence that he had used the display letters and words indicated above on the door and windows of his shop, then, as a matter of law, he was practicing medicine, and was guilty as charged in the indictment. The prosecution was founded on Chapter 84, Section 12, Acts of 1916, pp. 138, 147. The parts of Section 12 held to be applicable to this case read as follows:

> *Definition of Practice of Medicine.*—Any person shall be regarded as practicing medicine within the meaning of this act . . . (2) or who shall use in connection with his name the word or letters "Dr.," "Doctor," "Professor," "M.D." or "Healer," or any other title, word, letter or designation intending to imply or designate him as a practitioner of medicine in any of its branches, or of being able to heal, cure or relieve those who may be suffering from injury or deformity or disease of mind or body. This section shall also apply to corporations.

If, standing alone, the display signs or letters employed by the accused could be said to bring him within the condemnation of Section 12 (which the court need not decide), nevertheless, when that section is read in connection with Section 11, it is quite clear that he was not guilty of the offense of which he was convicted. Under "Exemptions from Examinations—Exceptions," Section 11, after declaring: "Nothing in this act shall be construed to affect commissioned or contract medical officers serving in the United States Army," etc., continues: "Or any nonitinerant person or manufacturer who mechanically fits or sells lenses, artificial eyes, . . . or is engaged in the mechanical examination of eyes for the purpose of adjusting spectacles, eyeglasses or lenses." Thus it plainly appears that the business or avocation of the accused is included in the foregoing exemption or exception, and that he was not amenable to this prosecution. The court also directs attention to Acts of 1916, Chapter 148, p. 251, which defines and regulates the practice of optometry, and makes provision for the establishment of a board of examiners in optometry, etc. For these reasons, the judgment of the corporation court of the city of Roanoke must be reversed, and the case remanded for further proceedings.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23.
Georgia State Medical Association, Savannah, April 17-19.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
North Carolina State Medical Society, Pinehurst, April 16-18.
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

NEW YORK ACADEMY OF MEDICINE

Meeting held Feb. 7, 1918

The First Vice President, Dr. George D. Stewart,
in the Chair

The program of this meeting was furnished from the Camp Upton Base Hospital, Major J. Whitham, commanding.

Classification and Results of Treatment of Pneumonia at Camp Upton

Capt. Russell L. Cecil: Health conditions at Camp Upton have been unusually good. It was not until the arrival of the colored troops from the South that there was an increase in the morbidity rate of the camp. The incidence of pneumonia by months was: October, 1 case; November, 4; December, 47, and January, 46 cases. The maximum number of troops in the camp was 35,000, the number of colored troops 3,500; yet 50 per cent. of the pneumonia cases have occurred among this 10 per cent. of the troops. Of the 100 cases of pneumonia, 75 were primary and 25 secondary, 19 of the latter following measles. Five of those following measles were streptococcus pneumonias. The classification of pneumonia cases according to the causative agent, comparing the Rockefeller series of cases with the Camp Upton series, showed that the pneumococcus was the cause of pneumonia in 94.50 per cent. of the Rockefeller cases and in 67.79 of the Camp Upton cases; the streptococcus was the causative agent in 3.1 per cent. of the Rockefeller cases and in 24.7 per cent. of the Camp Upton cases; the influenza bacillus in 1.2 per cent. of the Rockefeller series and in 2.2 per cent. of the Camp Upton series. There have been no cases in the Camp Upton series due to the Friedländer bacillus or the *Staphylococcus aureus,* though each of these organisms caused 0.6 per cent. of the Rockefeller series. The *Micrococcus catarrhalis* was not found as the causative agent in any of the Rockefeller group, while it caused 5.4 per cent. of the Camp Upton cases. The incidence of the four types of pneumococci in the Rockefeller groups of cases was, respectively, 33.9, 31.9, 12.9 and 24.9 per cent., while the relative incidence of the four types in the Camp Upton series was, respectively, 27.9, 12.79, 9.5 and 50.8. The average duration of the disease with each type of pneumococcus was: Type I, seven days; Type II, six and one-half days; Type III, six days, and Type IV, six and one-half days. There were a larger number of Type IV pneumonias than in civil life, and the cases of this type were a little more severe than in civil life. Of the twenty-three streptococcus cases, 24 per cent. were hemolytic and 76 per cent. nonhemolytic. The mortality rates for the different types were: Type I, 5.8 per cent.; Type II, 0.0; Type III, 16.6; Type IV, 18.7 per cent. The mortality of the streptococcus cases was 30.4 per cent. For the treatment of the cases the government supplied a Type I serum and a polyvalent serum (Mulford). We have tried one or the other of these serums in nearly all of the pneumococcus pneumonias, the serum being employed in 77 per cent. of all cases. Five-tenths c.c. of normal horse serum was given several hours before the administration of the antipneumococcus serum as a protection against anaphylaxis. In many of the streptococcus cases, as well as in the different types of pneumonia cases, the administration of the serum was followed by a marked drop in the temperature, which appeared to be a sort of foreign protein reaction. The serum as shown in other series of cases is most effective in pneumonia cases due to Type I pneumococci. The most frequent complication was empyema, which occurred in 12.9 per cent. of the pneumococcus cases and in 24.9 per cent. of the streptococcus cases. There were several cases of pneumococcus septicemia and a few relapses. Serum sickness occurred in about 25 per cent. of the cases. There were two cases of acute anaphylaxis. There was a mortality of 15 out of 100 cases of pneumonia, which was a very good showing. The mortality among the white troops was 14 per cent.; among the colored troops, 16 per cent., occurring mostly among the empyema patients. The lessons to be derived from our study of pneumonia at Camp Upton are: 1. All pneumonia cases should be typed. 2. Serum should be given in all Type I cases, as there is convincing evidence that the serum is of value in these cases. 3. The serum should be given early in the disease. 4. In the streptococcus cases one should be on the lookout for empyema, and as soon as pus is detected, free drainage should be established.

Measles from the Standpoint of Military Medicine

Capt. F. J. Hackett, in Charge of the Contagious Wards: Since an Army barracks provides nearly all the conditions favorable to the development and spread of the measles, the disease is a large problem in National Army cantonments. The conditions that appear to play the most important rôle in its spread and control are (1) the character of the camp strength, whether urban or rural, and (2) early recognition with prompt and efficient methods of sanitation—of inspection, quarantine and isolation, and finally hospital treatment. That measles appears to be distinctly an urban disease is shown by the expérience in a neighboring camp, in which, previous to the arrival of a large number of troops from a country district, the measles admissions were low; following the arrival of evidently nonimmune troops, the measles admission rate shot up week by week. At Camp Upton the experience has been very similar. During the fall and early winter there were few measles admissions. Since Jan. 1, 1918, the white measles cases have amounted to 25 per cent. of the total admissions, and it has been found that with one possible exception, all of these men were born or raised in rural communities, and had acquired city residence at a comparatively recent period. As a further precaution, trains arriving at Camp Upton with colored troops from measles-infected camps are inspected before the troops are allowed to detrain. With the advent of measles, the Y. M. C. A. hut was ordered closed, the post exchange was allowed to serve but two men at a time, and the regimental infirmaries were kept free from visitors. Measles patients returning to duty have been observed to fall easy victims of pneumonia; for this reason the Surgeon-General's Office has ordered measles patients held on the sick list two weeks longer than the usual quarantine period. Sixty measles patients have been admitted to the isolation wards of Camp Upton between Sept. 1, 1917, and Feb. 1, 1918. Medical treatment is purely symptomatic; a close watch is kept for pulmonary complications. Of the sixty admissions, pneumonia—probably bronchopneumonia, but massive and simulating the lobar type—was seen in seventeen cases, or 35 per cent. When pneumonia develops, the patient is immediately removed to the measles-pneumonia ward, where slightly more air space is allowed. Type I pneumococci were found in 11.7 per cent. of the cases; Type II was not found; Type III, in 5.8 per cent., and Type IV in 35 per cent. In 17.6 per cent. of the cases, the *Streptococcus viridans* was found, and the *Micrococcus catarrhalis* in a like percentage of the cases. There was but one death among the pneumonia patients following measles.

Hyperthyroidism in the Recruit

Major Harlow Bbooks, Chief of the Medical Service of the Camp Upton Base Hospital: One of the greatest medical surprises to which I have been treated since on active service has been the large number of cases of hyperthyroidism, which in civil life I considered almost exclusively a disease of women, and particularly of women rather unstable in their youth. I lay no claim to having made a discovery in bringing this type of cases to your attention, for the British have described the same condition as the effect syndrome, or as

"D. A. H."—discovered action of the heart. This group of circulatory phenomena form an important and inseparable part of that condition known as shell shock, which occurs in many persons who have never heard the sound of a shell, but more particularly among many who most earnestly desire never to do so. The most striking feature of these cases in nearly every instance is tachycardia, this being the symptom which brings the patient to the regimental officer. This symptom is present alike in recruits presenting themselves for initial examination and in those who report later after army routine may have further served to upset their emotional and circulatory equilibrium. The tachycardia is rarely accompanied by arrhythmia; the rate is practically always increased by exercise, though in exceptional cases it may be slowed by exercise, particularly when the attention is distracted. Other symptoms observed are a throbbing of the superficial vessels, notably the carotids, brachials, and even the femorals; in thin persons that of the aorta is also evident. The polygram would absolutely differentiate this condition from aortic incompetence. The heart sounds are usually difficult to analyze, though in a good many cases there is a soft systolic murmur at the apex, transmitted at times with decreasing intensity toward the axilla. There are many symptoms apparently secondary to the tachycardia. The capillary return is almost always delayed, and a capillary pulse is simulated. Patients frequently complain of an oppressive bursting pain in the region of the heart, and one is often able to demonstrate areas of hyperesthesia. Other symptoms are rapid flushing and paling, fainting and dizziness. The blood pressure is very low except in hypersensitive patients. Epinephrin causes an increase in the symptoms, and there is apparently a hypersensibility to thyroid. The nitrites markedly increase the symptoms, and there is hypersensibility to vasomotor dilators. The tachycardia cannot be controlled by digitalis. The sedatives, notably the bromids, give marked relief in some instances, but are apparently without effect in others. Next to the tachycardia, the manifestation that is most striking is the emotional instability, which is an invariable accompaniment of this disease. This is manifested in epileptoid attacks, outbursts of passion, tears, profanity, or possibly convulsive muscular spasms. Outbursts of emotionalism are followed by a stage of great exhaustion in which the patient may be so prostrated as to appear moribund. Neurovascular instability may be further shown by the tache cérébrale, by dermographia, by urticarial rashes, and by the almost constant symptom of tremor. A very certain index of the strong emotional element in the disease is furnished by the types of nationalities chiefly affected. The Jews lead with 50 per cent. of the cases which have come under my observation, then next in the order come the Italians, the Irish, and last of all the negroes, among whom in about 5,000 recruits only a single case, and that one questionable, was seen. Most of the patients are above the average in mental acuity, and the condition is lamentably frequent among promising material for noncommissioned officers. In about two thirds of these cases one may see a definite thyroid hypertrophy, or at least a prominence of the thyroid. A notable factor having direct bearing on the question of the rôle that hyperthyroidism plays in this condition is the certain part that heredity plays in the syndrome. A very considerable number of the cases give a history of ancestral goiter, particularly on the maternal side. There is also in most instances a familial history of hysteria, insanity, perversions, or of genius. Exophthalmos is present in the long standing cases. Thus it may be seen that these cases present all the cardinal symptoms of true exophthalmic goiter. Rest is the one factor that relieves these patients, and mental and emotional rest is second in importance. The rôle that emotional shock, fright or mental traumatism plays in the activation of exophthalmic goiter is too well established to admit of question, and explains the reason so many of these cases occur among young men of draft age. Thus far the question has been as to whether the subjects have the making of soldiers in them. Many of these patients recover under the really healthful and normal routine of camp life. If in these cases careful training is imposed, not too severe, until the recruit is prepared for heavy work; if the worry and strain are sufficiently relieved by reaction, by games, camp shows, etc., these men—often of the finest patriotic and spiritual fiber—are certain to make good soldiers; but if they are unhappy, or if overheavy or premature work is imposed, the recruit either may break nervously, or cardiac incompetence may ultimately develop.

Auto-Inoculation in Syphilis

Capt. Joseph Klauder, Philadelphia, in Charge of the Syphilis Ward: A review of the literature shows that persons infected with syphilis are susceptible to a second inoculation or superinfection with syphilis, not only during the period elapsing between the infection and the appearance of the chancre, but also at periods shortly subsequent to the appearance of the primary sore. In my analysis of 200 cases of chancre, 24 per cent. were found to be multiple; in some of these cases, according to the statement of the patient, the second lesion appeared subsequent to the first. The cases that I am herewith reporting are probably instances of superinfection with syphilis. The possibility of superinfection should be considered in the diagnosis of a genital lesion containing the spirochetes when appearing in a person giving a history of having had the disease. If in such a lesion the spirochetes are found in profusion and the Wassermann reaction is at first negative, later becoming positive, it is evidence of the lesion being a primary sore, a reinfection; whereas if the spirochetes are present in scant numbers and the Wassermann reaction is positive at the time of its appearance, it is evidence of a possible superinfection. Genital lesions that I have observed and regarded as superinfections were papular ulcerative and ulcerative in type, with slight induration; they were clinically not chancre. It is probable that many so-called second attacks of syphilis, or reinfection, are cases of superinfection. There is nevertheless evidence that so-called secondary attacks of syphilis may at times occur. By a second attack should be understood the occurrence, twice in a patient's life, of a primary sore followed by secondary symptoms; and if this definition were accepted, the phenomenon would be rather rare. In the differential diagnosis of genital lesions of the nature herein considered, besides reinfection and superinfection, the following possibilities should be considered: (1) ulcerative processes over foci of syphilitic lymphangitis on the penis, which might in rare cases simulate a recrudescence of the primary sore; (2) a mucous patch or an abrasion; (3) a localization of spirochetes at the point of lessened resistance as the result of trauma. Trauma in a syphilitic subject is often the determining point for the development of gumma.

DISCUSSION

Dr. Simon Baruch: I may be able to throw some light on Dr. Brooks' paper by mentioning the fact that in my experience in a number of institutions in this city I have seen this type of cases with enlarged thyroid and the same type of nervous instability which has been described by Dr. Brooks, and I have observed that the mental condition of the patient is frequently responsible for intensifying the symptom. Such persons may go along fairly well until they are subjected to some great nervous or emotional strain, and immediately this will bring out more active symptoms of thyroid disease.

Dr. William P. Northrup: I have been trying for many years to keep measles out of institutions, and have found it a most difficult thing to do when there are large groups of children in one building and new groups are frequently introduced. When an epidemic starts in a large institution, it seems that nothing will stop it until it has run its course. In order to see whether these children with measles could be kept from having complications and also to prevent the spread of the disease, Dr. Freeman tried keeping measles patients outdoors, and he found that the children treated outdoors did better than those treated indoors. When a case of measles occurs among the Indians, they place the patient in a tightly closed tent and keep a pot of water boiling with a brick in it. Under this treatment nearly every measles patient dies. I should like to know whether Captain Hackett has made any comparison of the results of treating measles in the adult indoors and in the open air.

Dr. William M. Leszynsky: From my observations I feel confident that it is the emotional strain rather than a disturbance of the thyroid secretion that is responsible for the symptoms described. Many of these men who have been under observation will never reach the other side, and I feel that it will be an advantage to the government if they do not get over, because men showing this instability are more likely than others to suffer from war neuroses. It would be interesting to know what percentage of these men have been found suitable for the Army when the tachycardia has disappeared.

Major Harlow Brooks: A small percentage become fit for military service, but many may be found useful to the government in other lines of work.

Capt. F. J. Hackett: In reply to Dr. Northrup's question I would say that we treat all measles patients in warm, well ventilated wards. I believe this is the reason our mortality has been so low. I had one man with measles who developed a *Micrococcus catarrhalis* pneumonia in a poorly warmed ward. He was removed to a warm ward and the improvement that followed was remarkable.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

Jaunary, 1918, **1**, No. 1

1 Essential Atrophy of Iris. M. Feingold, New Orleans.—p. 1.
2 Luxation and Avulsion of Eyeball During Birth. H. Friedenwald, Baltimore.—p. 9.
3 Aneurysms of Retinal Arteries. J. E. Jennings, St. Louis.—p. 12.
4 Primary Syphilis of Palpebral Conjunctiva. E. E. Maxey, Boise, Idaho.—p. 13.
5 Cyst of Dural Sheath of Optic Nerve. W. C. Bane, Denver.—p. 17.
6 Adaptability of Phoro-Optometer Stereoscope for Haitz and Bissell Charts. D. W. Wells, Boston.—p. 20.
7 Massive Spontaneous Hemorrhages into Vitreous. L. F. Appleman, Philadelphia.—p. 24.
8 Rise and Progress of Ophthalmology as Specialty in Philadelphia. S. D. Risley, Philadelphia.—p. 28.
9 Composite Ophthalmia Neonatorum Law. T. H. Shastid, Superior, Wis.—p. 43.

Annals of Ophthalmology, St. Louis

October, 1917, **26**, No. 4

10 Ocular Palsies in Infantile Paralysis; Report of Two Cases. A. C. Sautter, Philadelphia.—p. 541.
11 Case of Cavernous Angioma of Orbit. B. Chance, Philadelphia.—p. 547.
12 Treatment of Trachoma with Bulgarian Bacillus Culture. J. P. Crawford, Nashville, Tenn.—p. 557.
13 Inflammation of Conjunctiva Resembling Trachoma. C. J. Broyles, Johnson City, Tenn.—p. 560.
14 Transitory Hyperopia in Diabetes. F. A. Kiehle, Portland.—p. 564.
15 Cocain Keratitis. R. I. Lloyd, Brooklyn.—p. 568.
16 Case of Hereditary Bilateral Upward Coloboma of Iris with Remarks on Hereditary Blindness. C. Loeb, Chicago.—p. 573.
17 Treatment of Vitreous Opacities. W. H. Peck, Chicago.—p. 580.
18 History of Operation for Cataract. W. H. Crisp, Denver.—p. 585.
19 Comparison of Results of Elliot Trephine Operation and Iridotasis, on Same Patient, for Relief of Glaucoma. T. H. Odeneal, Beverly, Mass.—p. 601.

Boston Medical and Surgical Journal

Feb. 14, 1918, **178**, No. 7

20 Suggestions on Care of Mental Cases. F. H. Packard, Waverley.—p. 211.
21 Relation of Industrial Surgeon to Industry and to Society. J. F. Curran, Worcester.—p. 215.
22 Organized Provision for Care of Sick in Massachusetts. G. E. Whitehill, Everett.—p. 217.
23 *Gastroduodenal Perforation: New Diagnostic Sign. M. T. Field, Salem.—p. 220.
24 Differentiation of Streptococci. D. M. Lewis, New Haven, Conn.—p. 222.
25 Case of Severance of Chorda Tympani Nerve. I. Sobotky, Boston.—p. 224.

23. **Gastroduodenal Perforation.**—Of aids to diagnosis of gastroduodenal perforation that are independent of parietal peritoneal pain and sensitiveness. Field regards the presence of free air in the peritoneal cavity as being the most important. Every perforation large enough to allow fluid to escape, also allows some gas to pass through. When air is free within the peritoneal cavity, in sufficient amount, it may pass between the liver and diaphragm, causing obliteration of liver dulness. Roentgen-ray examination verifies this. Study and experience have led Field to the conclusion that obliteration of liver dulness is not so much absolute as relative, and depends much on the position in which the patient is examined. This practical point may be of the greatest value in differential diagnosis.

Cleveland Medical Journal

January, 1918, **17**, No. 1

26 Calcium Deposit in Tendon Sheath, Simulating an Osteoma. L. A. Pomeroy, Cleveland.—p. 1.
27 First Signs of Insanity. H. H. Drysdale, Cleveland.—p. 6.
28 Effect on Eye of Tincture of Iodin. R. B. Metz, Cleveland.—p. 18.
29 Two Cases of Cerebellar Abscess and One of Epidural Abscess of Otitic Origin, Presenting Similar Symptoms. D. A. Prendergast, Cleveland.—p. 20.

Journal of Bacteriology, Baltimore

January, 1918, **3**, No. 1

30 Toxicity of Victoria Blue 4 R. for B. Paratyphosus A and B and B. Enteritidis. O. Teague, New York.—p. 1.
31 Automatic Water Level for Arnold Sterilizers. I. C. Hall, San Francisco.—p. 7.
32 *Aerobic Spore-Forming Bacillus Giving Gas in Lactose Broth Isolated in Routine Water Examination. E. M. Meyer, Cincinnati.—p. 9.
33 *Simple Method for Classification of Bacteria as to Diastase Production. P. W. Allen, Urbana, Ill.—p. 15.
34 Simple and Practical Medium for Differentiating B. Typhosus, B. Paratyphosus A and B. B. Enteritidis and B. Coli. K. I. Morishima, New York.—p. 19.
35 New Apparatus for Obtaining Simultaneous Cultures of any Desired Age for Comparative Study. R. G. Perkins, Cleveland.—p. 23.
36 Studies in Nomenclature and Classification of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 27.
37 Study of Green Fluorescent Bacteria from Water. F. W. Tanner, Urbana, Ill.—p. 63.

32. **Aerobic Spore Forming Bacillus.**—An aerobic bacillus giving gas from lactose, and demonstrated to be spore forming, has been isolated by Meyer eight times between January 30 and April 20, 1917, from the tap water of Newport, Ky. This organism is believed to be a species whose isolation has never before been described.

33. **Classification of Bacteria as to Diastase Production.**—During the last two years in the Dairy Bacteriology Laboratory of the University of Illinois the use of potato slants for the determination of diastase production by bacteria has been replaced by a simple plate method as follows: A starch agar is made by adding 0.2 per cent. of water soluble starch to the regular plain agar. This starch agar can be sterilized in the autoclave along with other mediums. Some hydrolysis takes place, but not enough to interfere with the test. The agar is poured into Petri dishes and allowed to cool, when a stroke 2 inches long is made with a loopful of an agar slant growth of the organism to be tested. The plates are incubated for two days at 37 C. and five days at 20 C., after which they are flooded with a saturated solution of iodin in 50 per cent alcohol. A clear area about the stroke averaging more than 2 mm. in width classifies the diastatic action as strong, while a width of 2 mm. or less marks it as feeble and the absence of a halo as absent.

Journal of Cancer Research, Baltimore

January, 1918, **3**, No. 1

38 *Experimental Study of Pathogenesis of Carcinoma. K. Yamagiwa and K. Ichikawa, Tokyo, Japan.—p. 1.
39 *Histologic Study of Heterologous Tumor Grafts. F. D. Bullock and G. L. Rohdenburg, New York.—p. 31.
40 *Significance of Cartilage in Carcinochondrosarcoma of Mouse. W. H. Woglom, New York.—p. 47.
41 Growth of Tumors in Chick Embryo. H. N. Stevenson, New York.—p. 63.
42 *Part Played by Hydroxy-Benzol Radical in Acceleration of Growth of Carcinomas by Cholesterol and Tethelin. T. B. Robertson and T. C. Burnett, San Francisco.—p. 75.
43 Cases of Typical and Atypical Lymphosarcoma. G. M. Mackenzie, New York.—p. 93.

38. **Pathogenesis of Carcinoma.**—Papillomatous new growths (which Yamagiwa and Ichikawa's term folliculo-epitheliomas) may be produced on the rabbit's ear by the application of coal tar for thirty to 100 days. The proportion of folliculo-epitheliomas to the total number of ears treated gradually

rises. By the repeated application of coal tar, eight cases of carcinoma in its earliest stage, sixteen in an early stage, and seven complete carcinomas were produced. The carcinomatous change was discovered between the fifty-fifth and the three hundred and sixtieth day; in most of the cases it was found after the one hundred and fiftieth day. The hyperkeratotic pedunculated or sessile folliculo-epitheliomas produced by irritation with coal tar continued to grow after the irritant had been discontinued, and eventually developed into cutaneous horns. Some of these horns grew for years after the withdrawal of the coal tar, while others fell off spontaneously; in the great majority of the latter animals new cutaneous horns grew again from the same base, or from the neighboring epithelium, as is the case in man. The seventh and sixteenth cases of carcinoma in its early stage developed from cutaneous horns about 300 days after the tar had been discontinued. The presence of metastasis was microscopically proved in the regional lymph nodes in the fourth and sixth cases of carcinoma. The animals which bore folliculo-epitheliomas did not begin to emaciate while the new growth maintained its benign character. Yamagiwa's hypothesis has been confirmed: The repetition or continuation of chronic irritation may cause a precancerous alteration in epithelium previously normal. If the irritant continue its action, carcinoma may be the outcome, even though no specific agent has been interpolated.

39. **Heterologous Tumor Grafts.**—This paper records three series of experiments on closely related factors in tumor immunity: (*a*) a study of the relation between the local tissue reaction and the heteroplastic tumor graft; (*b*) the effect of removal of the spleen on the growth of heterologous tumor; (*c*) a study of the immunizing power of one heterologous tumor on the growth of a second heterologous tumor of different type, and the possible influence of splenectomy on such immunity. Bullock and Rohdenburg claim that while the death of some heteroplastic tumor grafts may, perhaps, be attributed to the action of lymphocytes and connective tissue, there is no histologic proof that it is always determined by these factors. Tumors elicit in foreign species a reaction of much the same character as that produced in homologous animals. Removal of the spleen has no influence on the receptivity of an animal toward heteroplastic tumor grafts. Splenectomy does not favor the growth of heteroplastic tumor grafts. One inoculation of a heterologous tumor does not always render an animal immune to the temporary growth of a subsequent heterologous graft.

40. **Significance of Cartilage of Carcinochondrosarcoma.**—Woglom says that the presence of cartilage in the sarcomatous portion of a carcinosarcoma in the mouse strongly suggests that the sarcomatous part was of connective tissue, rather than of epithelial origin.

42. **Acceleration of Growth of Carcinomas by Cholesterol and Tethelin.**—Robertson and Burnett summarize their work as follows: The accelerative action of cholesterol on the growth of carcinoma is dependent on the hydroxyl radical. Other hydroxy-benzol derivatives, namely, metacresol, benzyl alcohol, hexahydrophenol, borneol and inosite, do not cause any decisive acceleration of tumor growth. They infer that the accelerative actions of cholesterol and tethelin are not due to their possession of a hydroxybenzol group, but that the accelerative action of cholesterol is in some way rendered possible by its possession of a hydroxyl group. The hydroxyl group may act as an anchoring group, fixing the cholesterol to the tissue, or it may merely facilitate the distribution of cholesterol throughout the tissue fluids by rendering the cholesterol emulsifiable.

Journal of Immunology, Baltimore

January, 1918, 3, No. 1

44 *Rapid Method for Production of Precipitin Antigen from Bacteria: An Attempt to Apply it to Determination of Type of Pneumococcus in Sputum. C. Krumwiede, Jr., and W. C. Noble, New York.—p. 1.
45 *Von Dungern's Indigo Test for Syphilis. B. Fujimoto, Tokyo, Japan.—p. 11.
46 *Extracts of Antibodies Obtained from Specific Precipitates of Typhoid Antityphoid Serum Complex. I. Weinstein, New York.—p. 17.
47 *Specificity of Intracutaneous Absorption. G. H. Smith and M. W. Cook, Glenolden, Pa.—p. 35.
48 Specific Reactions of Body Fluids in Pneumococcic Infections. G. R. Lacy and C. C. Hartman, Pittsburgh.—p. 43.

44. **Production of Precipitin Antigen from Bacteria.**—Krumwiede and Noble describe their method as follows: To a heavy suspension of bacteria in distilled water, add sufficient alkaline hypochlorite solution to give a final concentration of 5 per cent.; boil over the free flame or heat in a water bath for several minutes. If the bacteria have not dissolved, add more of the alkaline hypochlorite solution and reheat. Repeat this process till the bacteria are completely dissolved. This is shown by the appearance of translucency. Add several drops of an alcoholic solution of phenolphthalein. Then add a normal hydrochloric acid volumetric solution till the color is just discharged. To this neutralized solution, add several volumes of 95 per cent. alcohol. A copious precipitate which increases on standing, should result. The precipitate is collected by centrifuging and decanting the supernatant fluid. Add normal saline solution to the sediment to give approximately a 1:20 solution by volume and extract at the temperature of boiling water or boil over the free flame for from three to five minutes. Then centrifuge to clear the solution of the insoluble débris. The supernatant fluid is the finished antigen. It can be prepared in a half hour or less if necessary. This antigen can be reheated for sterilization at 100 C. apparently indefinitely.

45. **Von Dungern's Indigo Test for Syphilis.**—Fujimoto claims that von Dungern's indigo test for syphilis is practically unavailable for the serum diagnosis of syphilis, because there is no difference as to this test between syphilitic and nonsyphilitic serums. Among the substances that the reagent contains, neither indigo nor salts play any part in the inhibition of the coagulation, as von Dungern formerly thought. The coagulation of serums in this reaction is prevented only by the alkali, as Flood proved. The degree of alkalinity that can prevent the coagulation of serum, varies according to the individual, not according to the presence or absence of syphilis. On the other hand, the alkalinity that prevents the coagulation of serums varies according to the concentration of the serums; that is, the more diluted the serum, the more easily may its heat coagulation be prevented by alkali.

46. **Antibodies Obtained from Precipitates of Typhoid Antityphoid Serum.**—An extract of typhoid bacilli, formed by digesting the bacteria in 2.5 per cent. antiformin and neutralizing the solution with normal hydrochloric acid, produces a voluminous precipitate when mixed with antityphoid serum. An equal amount of such an antigen solution and serum produces the maximum precipitate. Weinstein says that such precipitates contain not only precipitins, but also agglutinins, complement fixing, bactericidal and protective bodies. By passing stock cultures of typhoid bacilli through guinea-pigs, whose resistance is lowered by the simultaneous injection of streptococcus vaccine, it is possible so to increase the virulence of the culture that small doses will kill mice and guinea-pigs in a short time. One c.c. of extract will protect guinea-pigs against 2 c.c. of typhoid bouillon culture, a fatal dose; 0.2 c.c. of extract will protect mice against 0.2 c.c. of culture, which is likewise a fatal dose.

47. **Specificity of Intracutaneous Absorption.**—In the present work guinea-pigs immunized to one antigen were tested by the intracutaneous injection of the specific and also of a heterologous antigen to demonstrate to what extent absorption depends on a specific factor. It is evident from the data given that precipitin and agglutination tests are satisfactory means for measuring the transference of antigen. The agglutination titrations run parallel with the precipitin tests. The process of immunization develops a mechanism whereby the specific antigen is removed from the cutaneous tissues to reappear in the serum at a rate far in excess of that occurring in normal animals. The conclusion drawn by Smith and Cook from this work is that the immune state so alters the process of antigen absorption from the skin that the specific antigen is removed more readily than in the normal state. Moreover, it is of especial interest that in an immunized

animal the nonspecific antigen is not eliminated as rapidly as is the same antigen from normal tissues, for in the animals immunized to horse serum the rate of disappearance of goat serum was delayed over that found in normal pigs. It would seem, therefore, that in immunized animals, a specific mechanism has been developed at the expense, in some measure, of the normal process.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, 1918, **10**, No. 7

49 *Quantitative Study of Effect of Digitalis on Heart of Cat. G. C. Robinson and F. N. Wilson, St. Louis.—p. 491.
50 *Absorption of Drugs and Poisons Through Vagina. D. I. Macht, Baltimore.—p. 509.
51 *Local Hemostatic Properties of Cotarnin and Some other Agents. P. J. Hanzlik, Cleveland.—p. 523.

49. **Effect of Digitalis on Heart.**—The experiments made by Robinson and Wilson indicate that the action which digitalis exerts on the cat's heart is altered when the vagi are cut. The inversion of the T wave occurs practically with the same dosage and to the same extent as it does when the vagi are intact, but the auriculoventricular conduction and the heart rate are almost unaffected by digitalis intravenously injected to the lethal dose after the vagi have been cut. These findings indicate that the drug exerts its action on the heart of the cat both directly and through its effects on the vagus center. The direct action on the heart as shown by the change in the T wave of the electrocardiogram is the first definite effect to appear when a constant percentage of the lethal dose of the drug is injected at intervals intravenously. The moderate slowing of the heart rate which followed the injection of digitalis in vagotomized cats may be an indication of the stimulation of the peripheral end of the vagi.

50. **Absorption of Drugs Through Vagina.**—Macht shows that a large number of drugs and poisons—alkaloids, inorganic salts, esters and antiseptics—can be and are easily absorbed through the vaginal wall, and that poisoning through the vagina, of a grave character, is not very rare. These experiments indicate, on the one hand, the possibility of administering drugs therapeutically for their constitutional effects through the vaginal route; and on the other hand emphasize the great danger of the indiscriminate employment of various poisonous substances in the form of douches, tampons, "uterine wafers," etc.

51. **Local Hemostatic Properties of Cotarnin.**—Hanzlik states that as compared with epinephrin, the salts of cotarnin (styptol and stypticin) and sodium phthalate are certainly inferior hemostatics, and probably entirely inactive in this respect.

Kansas Medical Society Journal, Topeka

February, 1918, **18**, No. 2

52 Freudian Psychology. M. S. Deland, Topeka.—p. 29.
53 Relationship of Gastric Ulcer to Malignancy. A. Smith, Parsons.—p. 36.

Medical Record, New York

Feb. 16, 1918, 93, No. 7

54 Wounds of Thorax in War. J. R. Eastman, Indianapolis.—p. 265.
55 *Report on Ten Thousand Cases from Clearing House for Mental Defectives. M. G. Schlapp and A. E. Paulsen, New York.—p. 269.
56 Flatfeet and Two Opinions. D. H. Stewart, New York.—p. 275.
57 Symptomatic Atelectasis. A. Abrams, San Francisco.—p. 276.
58 Uterine Fibroid Tumors. F. D. Reese, Cortland.—p. 278.
59 Accidents and Complications of Fistula Operations. C. J. Drueck, Chicago.—p. 280.
60 Some Costly Illusions in Management of Tuberculosis Patients. H. Crutcher, Tularosa, N. M.—p. 282.
61 Radium Emanation in Hay-Fever. F. E. Park, Stoneham, Mass.—p. 284.

55. **Clearing House for Mental Defectives.**—The Clearing House for Mental Defectives was established by Dr. Schlapp in 1911, at the Post-Graduate Hospital in New York City. The institution formulated as its aim the detention, scientific diagnosis, registration and research into mental deficiency, and recommended that all persons found to be socially unfit, actually or potentially, possibly as a result of mental defect, should be referred to the Clearing House by the agent of the department or society which discovers them, and that at the Clearing House they should be subject to the following procedure: (1) complete registration and identification of the person by means of photographs and by mental and physical measurements, combined with a complete history of the case and all relative facts obtainable; (2) diagnosis; (3) recommendations for care, treatment and training proper to each case; (4) follow-up work. In the beginning the Clearing House received its patients from chance applicants at the hospital and from miscellaneous social workers who know of its existence. In 1913, Commissioner Drummond of the Department of Public Charities recognized the Clearing House as the official examining place for admission to Randall's Island. Since the summer of 1915 the official relationship between the Department of Public Charities and the Clearing House has been severed. In 1913, the state legislature passed a bill providing for proper examination of children passing through the courts, and in January, 1917, the courts, basing their authority on this law, established a separate clinic for their own cases. The original Clearing House, however, continues its work just as it always did receiving patients from any agency which may find occasion to use it. On the average, about 1,500 new cases are seen every year. The Clearing House has now examined over 10,000 cases. An analysis of these cases is given.

Mental Hygiene, New York

January, 1918, **2**, No. 1

62 Management of War Neuroses and Allied Disorders in Army. J. Collie.—p. 1.
63 Mental Health for Normal Children. W. H. Burnham.—p. 19.
64 Consideration of Conduct Disorders in Feebleminded. L. P. Clark, New York.—p. 23.
65 Feeblemindedness and Industrial Relations. C. S. Rossy, Ossining.—p. 34.
66 Practical Function of Psychiatric Clinic. J. T. MacCurdy, New York.—p. 53.
67 Family of Neurosyphilitic. H. C. Solomon and M. H. Solomon, Boston.—p. 71.
68 Better Statistics of Mental Diseases. H. M. Pollock, New York.—p. 81.
69 Study of Six Hundred and Eight Admissions to Sing Sing Prison. B. Glueck, New York.—p. 85.

Military Surgeon, Washington, D. C.

February, 1918, **42**, No. 2

70 *Epidemic of Measles and Pneumonia in 31st Division, Camp Wheeler, Ga. L. C. Duncan.—p. 123.
71 Treatment of Pneumonia in Base Hospital. Camp Wheeler, Ga. J. Sailer.—p 133.
72 *Disposition of Patients and Candidates for Enlistment who Present Symptoms and Signs of Heart Disease. J. M. Swan.—p. 139.
73 Effects of High Altitudes on Efficiency of Aviators. E. G. Seibert.—p. 145.
74 *Study of Aerobic Bacteria Found in Wounds Received on Battlefield of Somme. J. S. Lawrence.—p. 149.
75 Medicomilitary Notes. R. W. Hinds.—p. 169.
76 Laboratory of Experimental Sanitation at Medical Officers' Training Camp, Fort Riley, Kan. D. M. Shewbrooks.—p. 179.

70. **Measles and Pneumonia at Camp Wheeler.**—The following measures were adopted at Camp Wheeler to combat the measles and pneumonia epidemic: A sufficient amount of woolen clothes, including overcoats and blankets, was secured. Through the effective action of the Surgeon-General sufficient tents were secured to place but five men in a tent, allowing 50 square feet of floor space per man. Greater efforts were made to secure systematic furling of tents, and the keeping open of tent hoods and doors at night. A sentry was placed in each company street to enforce this order. Tent floors were required to be mopped out daily with a 2 per cent. creolin solution. Spit boxes, filled with sand wet with creolin solution and emptied daily, were required in each tent. Mess kits were required to be boiled and the use of dish rags was not allowed. Careful supervision of dental work was required, with sterilization of instruments by boiling. Sterilizing rooms were constructed at the base hospitals and in all infirmaries, for sterilization of effects of pneumonia patients. Formaldehyd solution and phenol were used in these. Pneumonia convalescents were segregated and not returned to regiments, but later sent to Fort McPherson hos-

pital. The spraying of throats of convalescents with dichloramin-T was required. Measles patients were separated by screens in the hospital, and retained for a much longer time than previously. From an early date, pneumonia patients were segregated in the base hospital and the types, so far as possible, separated, measles pneumonia being isolated from independent pneumonia. Sprinklers were secured and a general system of road sprinkling was instituted, though at rather a late date. The stopping of all gatherings was considered long and carefully, but never adopted. Prophylactic vaccination was advised by Duncan as an experiment, but has not yet been tried.

72. **Disposition of Recruits with Heart Disease.**—The following data are presented by Swan for the guidance of recruiting officers and ward surgeons: 1. A candidate for enlistment who presents definite evidence of mitral stenosis, aortic regurgitation, aneurysm or hypertrophy of the heart should be rejected. 2. A candidate who presents an apex systolic murmur, transmitted into the axilla and heard at the angle of the scapula, accompanied by definite evidence of cardiac hypertrophy and subjective symptoms, should be rejected. 3. A candidate who presents an apex or a basal systolic murmur of irregular transmission, not accompanied with cardiac hypertrophy, and unattended, except occasionally, with subjective symptoms, should be accepted. It is altogether likely that such a candidate, under regular outdoor life with systematic muscular exercise, would prove satisfactory material for the development of a good soldier. 4. A candidate who presents an extrasystolic arrhythmia or a respiratory arrhythmia should be accepted, provided there is no evidence of organic heart disease. 5. A candidate who presents a pulsus irregularis perpetuus (auricular fibrillation) should be rejected. 6. Cases of functional cardiac disease which have, in the past, been termed irritable heart of soldiers, etc., should not be treated as cardiac cases. They should not receive digitalis. They should not be kept in bed. They should be employed at tasks which require a gradually increasing expenditure of muscular effort. Calisthenics should form a part of their treatment. 7. Candidates for enlistment who give a history of syphilis and of recurring attacks of rheumatic fever should be rejected.

74. **Study of Aerobic Bacteria Found in Wounds on Battlefield.**—The purpose of this paper is to give the American surgeon and bacteriologist an idea of the types of organisms that contaminate gunshot wounds made on the western front, their relative frequency and importance and simple methods for their identification. The material was collected in the summer of 1916 from wounds inflicted on all parts of the body and received about Peronne at the time of the English and French drive. About 1,500 wounds were studied culturally, and more than 5,000 stained preparations were examined from July until November. Lawrence says that every wound will be contaminated sooner or later, while the vast majority are infected at the time of making. Another source of infection may be the dressing. The microscopic findings were often hastily reported as streptococci, staphylococci or gram-negative or gram-positive bacilli. The great mass of organisms were micrococci, both gram-negative and gram-positive, and gram-negative bacilli of the colon proteus group. In more than 80 per cent. of the wounds studied culturally, streptococci (cocci appearing in chains of four or more units) were found. In the deep or pocketed wounds the streptococci flourished, but in the shallow wounds, or when the deep pockets were opened wide, they were replaced by staphylococci in the course of healing. Gram-negative and gram-positive varieties of both streptococci and staphylococci were observed. Varying degrees of anaerobiasis were manifested in the deep cultures examined after twenty-four hours' growth. The pneumococcus, *M. catarrhalis*, *M. tetragenus* and *enterococcus*, in addition to *M. aureus* and *M. albus*, were recognized.

Gram-negative bacilli, usually of the typhoid colon size but occasionally some that were larger, were present in 95 per cent. of the wounds. The following organisms were isolated in pure culture with the frequency indicated. *B. coli* was found in more than 50 per cent. of the wounds. *B. vulgaris* was found in about 40 per cent. of the wounds, *B. aerogenes* and *B. pseudodysentericus* (Müller, 1902) were isolated from about 25 per cent. of the wounds. *B. cloacae*, *B. rhinoscleroma* and *B. alcaligenes* were each isolated from 10 to 20 per cent. of the wounds. *B. pyocyaneus* was isolated from only about 10 per cent. of the wounds while they were still fresh, but as the wounds grew older it was found more frequently. Larger bacilli, both gram-negative and gram-positive, were observed in about 20 per cent. of the wounds and, when cultured, proved frequently to be aerobic spore-bearing organisms. Of these the following varieties were isolated. Arranged in the order of their frequency, they are: *B. cereus*, *B. mesentericus*, *B. vulgatus*, *B. subtilis*, *B. fusiformis*, *B. albolactus*, *B. aterrimus*, *B. megaterium*, *B. brevis*, *B. terminalis* and *B. circulans*. These organisms usually disappeared very promptly from wounds under treatment. Other gram-positive bacilli, but nonspore-bearing, were very like *B. diphtheriae* in morphology. These organisms were more prevalent in the winter than in the summer. These observations indicate that: (*a*) The type of contamination may vary with the location of the battlefield, with the time of the year, with the age of the wound and with the care exercised in making the dressings. (*b*) The contaminating organisms are saprophytes or parasites from the air or intestinal tract. (*c*) They are mostly nonpathogenic, but, when exceptionally situated, may produce toxic conditions.

Minnesota Medicine, St. Paul

February, 1918, **1**, No. 2

77 Colles' Fracture. O. W. Parker, Ely.—p. 53.
78 Military Surgeon in Service. H. Greenleaf, Fort Snelling.—p. 62
79 Medical Advisory Boards. W. J. Mayo, Rochester.—p. 66.

New Jersey Medical Society Journal, Orange

February, 1918, **15**, No. 2

80 From Nursery to Dining-Room. W. W. Riha, Bayonne.—p. 37.
81 Malingering. W. J. Chandler, South Orange.—p. 41.
82 Loose Kidneys. F. M. Donohue, New Brunswick.—p. 46.
83 Inversion of Uterus with Spontaneous Replacement. J. A. Maclay, Paterson.—p. 48.

New York Medical Journal

Feb. 16, 1918, **107**, No. 7

84 Relation of War to Nourishment of Children. S. J. Baker, New York.—p. 289.
85 Cure of Heart Disease in America as Replacing Heart Cures of Europe. L. F. Bishop, New York.—p. 293.
86 Tuberculosis and Roentgenograms. M. E. Lapham, Highlands N. C.—p. 294.
87 Epilepsy. F. R. Starkey, Detroit.—p. 298.
88 Control of Communicable Diseases in City of New York.—S. D Hubbard, New York.—p. 303.
89 Practical Points Concerning Diphtheria. D. M. Lewis, New Haven Conn.—p. 306.
90 Exanthematous and Other Forms of Influenza. B. Frankel, New York.—p. 308.

Southern Medical Journal, Birmingham, Ala.

February, 1918, **11**, No. 2

91 Present Outlook on Tuberculin Therapy. P. H. Ringer, Asheville N. C.—p. 83.
92 *Fundamentals of Vaccine Therapy. E. D. Holland, Hot Springs. Ark.—p. 87.
93 *Value of Triple Typhoid Vaccine in Civil as Well as Military Life R. Lyons, New Orleans.—p. 89.
94 Natural Starting Point of All Rational Medical Thought. J. C. Johnson, Atlanta, Ga.—p. 94.
95 Some Manifestations of Malaria Relative to Digestive Disturbances J. E. Knighton, Shreveport, La.—p. 98.
96 *Relative Value of Public Health Nurse in Solution of Tuberculosis Problem. W. L. Heizer, Frankfort, Ky.—p. 103.
97 Medical Inspection of Schools in North Carolina. G. M. Cooper Raleigh, N. C.—p. 112.
98 Medical Supervision of Employees in Large Industries. J. A Gentry, Atlanta, Ga.—p. 115.
99 Recent Progress in Treatment of Cancer of Prostate, Seminal Vesicles and Bladder. H. H. Young, Baltimore.—p. 120.
100 *Tumors of Urinary Bladder. E. S. Judd and S. W. Harrington, Rochester, Minn.—p. 129.
101 Interpretation of Lumbosacral Backache in Women. E. H. Richardson, Baltimore.—p. 139.
102 Blood Transfusion in Emergency Surgery—Sodium Citrate—Indirect Method. E. T. Newell, Chattanooga, Tenn.—p. 145.
103 Late Infection After Elliott Operation Not Always Fatal. M. Feingold, New Orleans.—p. 150.
104 Tests by Bárány Method. J. J. Shea, Memphis, Tenn.—p. 152.

animal the nonspecific antigen is not eliminated as rapidly as is the same antigen from normal tissues, for in the animals immunized to horse serum the rate of disappearance of goat serum was delayed over that found in normal pigs. It would seem, therefore, that in immunized animals, a specific mechanism has been developed at the expense, in some measure, of the normal process.

Journal of Pharmacology and Experimental Therapeutics, *Baltimore*

January, 1918, **10**, No. 7

49 *Quantitative Study of Effect of Digitalis on Heart of Cat. G. C. Robinson and F. N. Wilson, St. Louis.—p. 491.
50 *Absorption of Drugs and Poisons Through Vagina. D. I. Macht. Baltimore.—p. 509.
51 *Local Hemostatic Properties of Cotarnin and Some other Agents. *P. J. Hanzlik, Cleveland.*—p. 523.

49. **Effect of Digitalis on Heart.**—The experiments made by Robinson and Wilson indicate that the action which digitalis exerts on the cat's heart is altered when the vagi are cut. The inversion of the T wave occurs practically with the same dosage and to the same extent as it does when the vagi are intact, but the auriculoventricular conduction and the heart rate are almost unaffected by digitalis intravenously injected to the lethal dose after the vagi have been cut. These findings indicate that the drug exerts its action on the heart of the cat both directly and through its effects on the vagus center. The direct action on the heart as shown by the change in the T wave of the electrocardiogram is the first definite effect to appear when a constant percentage of the lethal dose of the drug is injected at intervals intravenously. The moderate slowing of the heart rate which followed the injection of digitalis in vagotomized cats may be an indication of the stimulation of the peripheral end of the vagi.

50. **Absorption of Drugs Through Vagina.**—Macht shows that a large number of drugs and poisons—alkaloids, inorganic salts, esters and antiseptics—can be and are easily absorbed through the vaginal wall, and that poisoning through the vagina, of a grave character, is not very rare. These experiments indicate, on the one hand, the possibility of administering drugs therapeutically for their constitutional effects through the vaginal route; and on the other hand emphasize the great danger of the indiscriminate employment of various poisonous substances in the form of douches, tampons, "uterine wafers," etc.

51. **Local Hemostatic Properties of Cotarnin.**—Hanzlik states that as compared with epinephrin, the salts of cotarnin (styptol and stypticin) and sodium phthalate are certainly inferior hemostatics, and probably entirely inactive in this respect.

Kansas Medical Society Journal, Topeka

February, 1918, **18**, No. 2

52 Freudian Psychology. M. S. Deland, Topeka.—p. 29.
53 Relationship of *Gastric Ulcer to Malignancy.* A. Smith, Parsons. —p. 36.

Medical Record, New York

Feb. 16, 1918, 93, No. 7

54 Wounds of Thorax in War. J. R. Eastman, Indianapolis.—p. 265.
55 *Report on Ten Thousand Cases from Clearing House for Mental Defectives. M. G. Schlapp and A. E. Paulsen, New York.—p. 269.
56 Flatfeet and Two Opinions. D. H. Stewart, New York.—p. 275.
57 Symptomatic Atelectasis. A. Abrams, San Francisco.—p. 276.
58 Uterine Fibroid Tumors. F. D. Reese, Cortland.—p. 278.
59 Accidents and Complications of Fistula Operations. C. J. Drueck, Chicago.—p. 280.
60 Some Costly Illusions in Management of Tuberculosis Patients. H. Crutcher, Tularosa, N. M.—p. 282.
61 Radium Emanation in Hay-Fever. F. E. Park, Stoneham, Mass.—p. 284.

55. **Clearing House for Mental Defectives.**—The Clearing House for Mental Defectives was established by Dr. Schlapp in 1911, at the Post-Graduate Hospital in New York City. The institution formulated as its aim the detention, scientific diagnosis, registration and research into mental deficiency, and recommended that all persons found to be socially unfit, actually or potentially, possibly as a result of mental defect, should be referred to the Clearing House by the agent of the department or society which discovers them, and that at the Clearing House they should be subject to the following procedure: (1) complete registration and identification of the person by means of photographs and by mental and physical measurements, combined with a complete history of the case and all relative facts obtainable; (2) diagnosis; (3) recommendations for care, treatment and training proper to each case; (4) follow-up work. In the beginning the Clearing House received its patients from chance applicants at the hospital and from miscellaneous social workers who know of its existence. In 1913, Commissioner Drummond of the Department of Public Charities recognized the Clearing House as the official examining place for admission to Randall's Island. Since the summer of 1915 the official relationship between the Department of Public Charities and the Clearing House has been severed. In 1913, the state legislature passed a bill providing for proper examination of children passing through the courts, and in January, 1917, the courts, basing their authority on this law, established a separate clinic for their own cases. The original Clearing House, however, continues its work just as it always did receiving patients from any agency which may find occasion to use it. On the average, about 1,500 new cases are seen every year. The Clearing House has now examined over 10,000 cases. An analysis of these cases is given.

Mental Hygiene, New York

January, 1918, **2**, No. 1

62 Management of War Neuroses and Allied Disorders in Army. J. Collie.—p. 1.
63 *Mental Health for Normal Children.* W. H. Burnham.—p. 19.
64 Consideration of Conduct Disorders in Feebleminded. L. P. Clark, New York.—p. 23.
65 Feeblemindedness and Industrial Relations. C. S. Rossy, Ossining.—p. 34.
66 *Practical Function of Psychiatric Clinic.* J. T. MacCurdy, New York.—p. 53.
67 *Family of Neurosyphilitic.* H. C. Solomon and M. H. Solomon, Boston.—p. 71.
68 Better Statistics of Mental Diseases. H. M. Pollock, New York. —p. 81.
69 Study of Six Hundred and Eight Admissions to Sing Sing Prison. B. Glueck, New York.—p. 85.

Military Surgeon, Washington, D. C.

February, 1918, **42**, No. 2

70 *Epidemic of Measles and Pneumonia in 31st Division, Camp Wheeler, Ga. L. C. Duncan.—p. 123.
71 Treatment of Pneumonia in Base Hospital. Camp Wheeler, Ga. J. Sailer.—p 133.
72 *Disposition of Patients and Candidates for Enlistment who Present Symptoms and Signs of Heart Disease. J. M. Swan. —p. 139.
73 Effects of High Altitudes on Efficiency of Aviators. E. G. Seibert. —p. 145.
74 *Study of Aerobic Bacteria Found in Wounds Received on Battlefield of Somme. J. S. Lawrence.—p. 149.
75 Medicomilitary Notes. R. W. Hinds.—p. 169.
76 Laboratory of Experimental Sanitation at Medical Officers' Training Camp, Fort Riley, Kan. D. M. Shewbrooks.—p. 179.

70. **Measles and Pneumonia at Camp Wheeler.**—The following measures were adopted at Camp Wheeler to combat the measles and pneumonia epidemic: A sufficient amount of woolen clothes, including overcoats and blankets, was secured. Through the effective action of the Surgeon-General sufficient tents were secured to place but five men in a tent, allowing 50 square feet of floor space per man. Greater efforts were made to secure systematic furling of tents, and the keeping open of tent hoods and doors at night. A sentry was placed in each company street to enforce this order. Tent floors were required to be mopped out daily with a 2 per cent. creolin solution. Spit boxes, filled with sand wet with creolin solution and emptied daily, were required in each tent. Mess kits were required to be boiled and the use of dish rags was not allowed. Careful supervision of dental work was required, with sterilization of instruments by boiling. Sterilizing rooms were constructed at the base hospitals and in all infirmaries, for sterilization of effects of pneumonia patients. Formaldehyd solution and phenol were used in these. Pneumonia convalescents were segregated and not returned to regiments, but later sent to Fort McPherson hos-

rib resected and the wound sewn up if its condition allows. The pleural cavity is then drained in the usual fashion, resecting about 3½ inches of rib, as far forward and as low as possible; that is, usually the eighth rib in the mid or anterior axillary line. Through this opening the cavity is explored, and an easily accessible foreign body and fragments of loose bone lying in the cavity or on the surface of the lung removed. Blood clot and fibrin are swabbed out so far as possible, and any septa forming loculi broken down. The cavity is next washed out with a warm mixture of hydrogen peroxid and eusol, or neutral solution of chlorinated soda. A rubber tube of a quarter of an inch internal diameter, with a large lateral opening a quarter of an inch from one extremity is then inserted, so that this end lies in the most dependent part of the pleural cavity when the patient is lying on the normal side; that is, in the costovertebral recess behind the pericardium. Finally, the wound is loosely sewn up, but no attempt is made to effect an airtight closure round the tube. When the patient has recovered from the operation, the size of the cavity is estimated by filling it carefully (but usually incompletely) with warmed neutral solution of chlorinated soda, and then emptying it. After this the cavity is filled through the tube every four hours to about one-third of its capacity or less with neutral solution of chlorinated soda. At the end of two hours another long tube is attached to the tube in the chest and the fluid siphoned out, the patient meanwhile lying on the sound side with the chest opening uppermost, or as nearly so as possible. The patient is told to pant or cough slightly at frequent intervals as long as the fluid remains in the chest, and by this means splash the fluid about inside the cavity, and so bathe with it the entire infected surface and any recesses that may exist. In this way the pleural cavity contains for two hours a large quantity of sodium hypochlorite solution and is more or less empty for a like time. During the former period the patient lies rigidly on the sound side, without any raising of the shoulders, to prevent escape of the fluid and consequent flooding of the bed; during the latter he is free to lie as he chooses. Thus the patient gets a reasonable amount of rest and comfort and is saved the exhaustion associated with the maintenance of one constant position. In addition, once daily, the tube is removed, sterilized, and replaced, and the cavity washed out as in the usual treatment for empyema. To overcome the disadvantages of injecting cold fluid into the chest, Campbell has found that it is better to make the neutral solution of chlorinated soda of double strength and, prior to filling, to dilute it with an equal quantity of warm sterile water. When treatment is carried out in this way, it is found that pus formation and offensive odor largely disappear at the end of thirty-six hours and are absent at the end of three to four days; the patient's tongue becomes clean and moist almost at once; delirium and emaciation, so frequently seen in these cases, are absent, and the temperature and pulse rates fall much more rapidly than usual; indeed when looking at them, it is hard to distinguish these cases from those that are not infected.

8. **Treatment of Amebic Dysentery.**—Judging by the results obtained by Lambert in a small series of cases, it would seem: 1. That we have in emetin and bismuth iodid a combination of considerable potency in the treatment of amebic dysentery, particularly when the amebae are assuming their resistant stage. When given in pill form in doses not exceeding 2 grains its emetic effects are slight, at all events in Indian cases. Its use in conjunction with hypodermic injections of emetin hydrochlorid in acute amebic dysentery would seem to be beneficial, in that convalescence is established earlier, and patients are less likely to become carriers. It cannot be considered in the light of a substitute for emetin, as attempts to treat acute cases with it alone ended in failure, until emetin was used in addition. 2. In carriers, and in those convalescents who continue to harbor cysts, emetin and bismuth iodid should prove superior to emetin, and it would seem a wise proceeding, from a public health point of view, to subject all cases of amebic dysentery to a course of emetin and bismuth iodid during convalescence.

Glasgow Medical Journal

January, 1918, 89, No. 1

9 Explanation of Color and Color Vision. ,C. R. Gibson.—p. 1.
10 *Most Unusual Case of Pathologic Fracture Myeloid Sarcoma and Cystic Disease of Bone. A. G. Faulds and J. H. Teacher. —p. 17.
11 Obstructive Alimentary Toxemia. A. Jones.—p. 22.

10. **Myeloid Sarcoma and Cystic Disease of Bone.**—A woman, aged 30 years, was suffering from an ununited fracture. While going downstairs three months previously her leg gave way. She was unable to rise. At the hospital a splint was applied, and she remained there for nearly three months. It was found, however, on attempting to get up, that her leg had not recovered. The roentgen rays showed a fracture somewhat comminuted about the junction of the upper and middle thirds. It was evident that disease had been the cause of the fracture. The usual operation of amputation of a thigh through the upper third was entered on, but when the surgeon reached the bone, he found the whole shaft from the seat of fracture to beyond the trochanters was diseased in so far that it was extremely fragile, had the appearance of being eaten away, and the color of rotting oak. On putting his knife against the bone, he found that he could easily pierce the outer shell, and testing it in this way up to the trochanters he found the same condition pervading the whole upper part of the shaft. The bone was then dissected up to the acetabulum, when, on manipulating the limb, the head broke off at the anatomic neck like a rotten piece of wood, and remained in the acetabulum. After opening the capsular ligament, the head of the femur was removed and the limb disarticulated.

The patient on admission was of an unhealthy appearance, being sallow, and a low cachectic complexion. She looked like a patient suffering from pernicious anemia or from some form of toxemia. The Wassermann reaction was negative. After the operation the patient steadily improved and was dismissed very much better, and with the stump healed, complaining, however, of the same kind of pain in her remaining thigh which she had suffered from before the fracture. On examination cysts were found in various parts of the bones removed. The cystic condition was very advanced in the whole of the upper part of the femur, and there were two or three small areas of it below the fracture; it was present at the soft spots in the tibia. There was nothing but atrophy in the bones of the foot. Only one small brown nodule projecting into a cyst showed the structure of myeloid sarcoma, but traces of this tissue, apparently undergoing fibrosis, were seen at one or two other points. One small brown mass which was picked out of the side of a small cyst was myeloid sarcoma.

Lancet, London

Feb. 2, 1918, 1, No. 4927

12 War Psychoneurosis. F. W. Mott.—p. 169.
13 Repression of War Experience. W. H. R. Rivers.—p. 173.
14 *Predisposing Factors of War Psychoneuroses. J. M. Wolfsohn. —p. 177.
15 *Prognosis with Special Reference to Condition Described as Irritable Heart of Soldiers. T. Lewis.—p. 181.

14. **Predisposing Factors of War Psychoneuroses.**—Wolfsohn made a study of 100 cases of war psychoneuroses and 100 cases of somatic injuries produced in the firing line. He says that cases of war neurosis are very rarely associated with external or somatic wounds. The vast majority of the psychoneurotic cases studied were among soldiers who had a neuropathic or psychopathic soil. In 74 per cent. of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism, and nervousness, was obtained, while a previous neuropathic constitution in the patient himself was present in 72 per cent. A gradual psychic shock from long continued fear, together with the sudden change from quiet peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psychoneurosis in soldiers with neuropathic predisposition. In fact, these factors may be the cause of the neurosis per se. The history of the patient previous to enlistment has an influence on the character and gravity of the symptoms of the neurosis. Acquired neuroses

with their less severe symptoms appeared only after excessive fatigue, with the concussion from the high explosive detonation acting as the exciting factor. On the other hand, in the same abnormal environment, and with the same powerful factors obtaining, wounded soldiers do not suffer from war neuroses except in rare instances. In the wounded soldiers studied no neuropathic or psychopathic stigmata occurred in the family history. Previous neuropathic tendencies were found in 10 per cent. of these patients (controls), all of which number presented mild neurasthenic symptoms. Hysteric manifestations, such as monoplegia in a wounded limb are occasionally encountered in injured soldiers.

15. **Prognosis of Irritable Heart of Soldiers.**—The plea which is urged by Lewis is a plea for a wider consideration and trial of exercise tests as a chief means of grading soldiers generally, but of grading invalid soldiers in particular, to various categories of duty. Lewis strongly advocated that every general military hospital should have at its disposal a training ground on which its patients may be submitted to physical exercises under the supervision of the medical officers who treat them and sort them. No patient in regard to whose physical capacity there is a doubt should be discharged from the hospital (as fit or unfit) until his tolerance or intolerance of physical strain has been established. The author outlines the actual results of the method employed in sorting those soldiers for duty who are admitted to the hospital for cardiac disabilities. All soldiers admitted to the Military Heart Hospital are submitted to a full physical examination, and within the first few days of their stay all patients presenting unequivocal signs of mitral stenosis, aortic disease, aneurysm, or material cardiac enlargement are recommended for discharge as permanently unfit. At this examination also are eliminated patients who suffer from manifest diseases of other systems, such as pulmonary tuberculosis, exophthalmic goiter, epilepsy. All are eliminated in whom a positive decision can be reached, none are eliminated in regard to whom a divergence of opinion may exist. Approximately, 3,000 patients have passed through Lewis' hands, the average stay of the patients in the hospital being between two and two and a half months. Of 558 men, examined during six months, 286, or approximately 50 per cent., were judged to be unfit for any category of duty. The remaining 272 men were recommended for one of the several duty categories. Of the whole group, only 38 have been discharged as permanently unfit from the army since they left the hospital, 5 additional men are unfit in lesser degree and are under treatment; 16 men are on sedentary duty at home.

Practitioner, London

February, 1918, **100,** No. 2

16 Value and Limitations of Sanatorium Treatment for Tuberculosis. S. Thomson.—p. 101.
17 Enuresis and Other Common Disorders of Conduct in Childhood. H. C. Cameron.—p. 112.
18 Recent Advances in Dermatology in Connection with War. J. M. H. Macleod.—p. 124.
19 Importance of Diastolic Readings in Differentiation and Treatment of High Blood Pressure Cases. O. K. Williamson.—p. 134.
20 Case of Persistent Tachycardia; Its Cause and Its Cure. C. E. Lea.—p. 141.
21 Germicidal and Therapeutic Action of Garlic. W. C. Minchin. —p. 145.
22 Reflex Phenomena Produced by Commencing Abdominal Hernia. W. B. Cosens.—p. 155.
23 Neurasthenia Pura—Its Etiology, Symptomatology and Pathogeneses, with Special Reference to Prodromal Period of Disease. S. H. Bennett.—p. 157.

Sei-I-Kwai Medical Journal, Tokyo

January, 1918, **37,** No. 1

24 Experimental Study on Influence of Excision of Liver on Constituent of Blood. H. Saito.—p. 1.
25 Distribution of Iodid Compounds in the Animal Body. K. Fujisawa.—p. 2.

Archives des Maladies de l'Appareil Digestif, Paris

December, 1917, **9,** No. 7

26 *Palpation with Cancer of the Rectum. Desmarest.—p. 361.
27 *Glycosuria in Diabetes during Intercurrent Disease. E. Cottin and C. Saloz (Geneva).—p. 371.
28 *Colon Hemorrhage. R. Goiffon and J. Nordmann.—p. 384.
29 *Recent Works on Dysentery. Savignac.—p. 391.

26. **Cancer of the Rectum.**—Desmarest has encountered fifty cases of rectal cancer in his surgical service in the last three years. The large proportion that were inoperable impels him to preach the necessity for earlier diagnosis, and for this, he declares, there is only one means, namely, *le toucher rectal*, exploration of the rectum with the fingers. This is within the reach of every one and he declares that every patient complaining of intestinal trouble and passing any blood by the anus should be examined in this way. Interrogating his cancer patients disclosed that very few had been examined in this way. The physician is too apt to assume merely enteritis or mucomembranous colitis, and put the patient on a special diet, when all the while the unsuspected cancer is progressing; or he ascribes the blood merely to hemorrhoids. Desmarest reiterates that the diagnosis of even hemorrhoids should never be made without rectal exploration. The rectum should be explored as systematically as is the vagina; it is fully as important in disease of the intestines as examination of the vagina with uterine mischief. When the cancer is in the lower half of the ampulla or below, rectal exploration alone is sufficient, but if located above this, rectoscopy is indispensable. With periprostatitis and perimetritis the rectal wall may be swollen and feel abnormal and it may be secreting abnormally. But these findings do not resemble those with malignant disease.

Cancer of the rectum is rarely located on the front wall of the rectum alone; the ulceration usually spreads on the front and side walls. It generally forms a raised patch. The finger bumps against the lower edge and the induration of the base produces a very characteristic sensation. The finger can feel whether the patch is irregular and more or less friable and whether there is a crater-like depression. Almost always the slightest touch is extremely painful and exaggerates the tenesmus. The finger is covered with purulent matter and some blood when it is drawn out if the cancer is ulcerating. A short finger may not reach a cancer high up, but by pulling down the anus, pushing in the suprapubic region if the patient is thin, the lower limit of the cancer may be reached, the finger hits against something. In dubious cases the rectoscope will solve the problem, but even this does not always inform as to the upward extent of the neoplasm, the depth, etc., and an exploratory laparotomy is indispensable.

27. **Diabetic Glycosuria During Intercurrent Diseases.**—Cottin and Saloz describe four cases of diabetes in men of 33 to 50 in which the sugar disappeared from the urine during a febrile intercurrent infectious disease. They describe the few similar experiences recorded in the literature, and theorize to explain this disappearance of the glycosuria. The most reasonable hypothesis, they think, is the assumption that the infectious agents consume the sugar by the fermentations which they induce in the tissues. If this assumption is tenable, it sustains the theory that diabetes is due to a lack of sugar-destroying ferments in the tissues. The fact that during infectious fevers the sugar disappears from the urine and reappears in convalescence testifies to a glycolytic action on the part of the microbes. Only diabetes which is the result of lack of glycolytic ferments would be modified in this way by a febrile infection, and this might serve as a touchstone for differentiation of different forms of diabetes.

28. **Colon Hemorrhage.**—Goiffon and Nordmann report five cases of the passage of red blood by the anus, either acute and profuse or chronically repeated in which the source proved to be in the colon although there were no symptoms to call attention to this part of the bowel at the time of the hemorrhage. With dysentery, tuberculosis, cancer and other lesions, there is generally pus with the blood. They found hot enemas useful, with calcium chlorid, ergot and other measures to check the hemorrhage; in the chronic cases, emetin and kosam. The treatment of the colitis is a difficult matter; they were unable to cure their patients completely in this respect.

29. **Dysentery.**—Savignac analyzes the various publications on dysentery during the last two years as the war has made this one of the questions of the day. The old dysenteric is

the source of danger. The adult ameba is fragile, but the man sowing ameba cysts here and there is the danger. Lebœuf found the ameba in 28 of 436 dysentery cases, and 20 of the 28 men had never been outside of France. Fiessinger's report shows that all the regiments taking over trenches that had been occupied by colonials, were touched with dysentery, and amebic dysentery was found in 5 of 27; 10 of 64, and 19 of 57 cases of diarrhea in different ten day periods. Lesieur found 20 cases in 1,250 of acute diarrhea. All the writers comment on the insidious nature of the first attacks. There may be nothing to suggest dysentery, or only one blood-streaked stool. In other cases the clinical picture simulated typhoid, or peritonitis. In some the amebic dysentery ran a fulminating course; in two, three or six weeks the entire colon was found ulcerated, the liver honeycombed with abscesses. Mattei noted a phase resembling cholera in 6 of 260 cases of amebiasis; there were always signs of renal incompetency and treatment of the uremia was imperative. The kidneys in these cases, as in Lesieur's "uremigenous gastro-enteritis," were already damaged.

There may be suppuration in the liver with the mildest form of amebiasis; in one case a man who had never had diarrhea and never been outside of France, died the tenth day after being taken sick, and necropsy showed amebic abscesses in the liver and suppuration in the colon. Job warns to suspect amebiasis whenever the liver is a bit enlarged. There should be no hesitation as to exploratory puncture; polynucleosis replacing eosinophilia points to abscess production. The diagnosis is especially important now that emetin promises a cure for an abscess with or without the aid of a simple puncture. The effect of the emetin should be evident in forty-eight hours; if not, surgical measures should be no longer delayed. Successive courses of emetin are advocated by most writers. Hurst advises during an epidemic a daily preventive ⅙ grain tablet of emetin by the mouth. All agree that other treatment must be applied for the encysted forms of the ameba, but progress seems to have been realized here also.

Archives de Médecine des Enfants, Paris

October, 1917, 20, No. 10

30 Congenital Stridor from Muscular Anomaly. G. Variot.—p. 530.
31 Frequency of Adenoids with Phimosis. M. Lassalle.—p. 535.
32 Mongolian Spot in Children in Brazil. C. Ferreira.—p. 537.
33 Acute Peritonitis in Children. J. Comby.—p. 538.

November, 1917, 20, No. 11

34 Lichenoid Eruption Around Intradermal Test Injection of Tuberculin. L. Brocq.—p. 590.
35 *Bacteriology of Whooping Cough. J. Comby.—p. 593.

December, 1917, 20, No. 12

36 *Mongolian Idiocy. J. Comby.—p. 617. Commenced in No. 10, p. 505.
37 *Epidemic Meningitis of Different Origins. P. Bézy.—p. 639.
38 Progressive Lipodystrophy. J. Comby.—p. 647.

35. **Bacteriology of Whooping Cough.**—Comby cites a recent publication to the effect that the sputum from 156 Copenhagen children with whooping cough showed the presence of the Bordet-Gengou bacillus in all who had been coughing for two weeks; in two-thirds of those who had had the paroxysmal cough for two weeks; in one third after three weeks, and only in three out of thirty-six in the fourth week, and only once later than this. In the incipient, catarrhal stage, it is difficult to obtain sputum. A Petri dish was held at a distance of 10 cm. from the child's mouth and he was made to cough by holding down the tongue with a spoon. All but seven plates thus inoculated by the droplets from the thirty-nine children examined gave positive cultures of the bacterium. This droplet method gives positive results even before the symptoms warn of the disease. The findings confirm the old assumption that whooping cough is not contagious after the fifth week. Children can thus be sent back to school after four weeks of the paroxysmal cough, even although it still keeps up. Agglutination was found positive in twenty-two of the twenty-three cases tested, while it was constantly negative in 102 healthy controls. It usually appeared at the third week and was constant by the fifth week up to several months. Comby's own experience confirms that whooping cough is contagious only in the first two or three weeks, and he reiterates that there is no use in imposing isolation after the fourth week from the first symptoms. In his service, cases sometimes develop in the general ward but none has ever developed in the ward set apart for the actually whooping children, although children with merely laryngitis, measles, grip and other spasmodic cough have sometimes been admitted by mistake. In measles, scarlet fever and mumps, as well, contagion is to be feared at the beginning, not after the disease is long under way.

36. **Mongolian Idiocy.**—Comby relates that he has encountered sixty-nine cases of mongolian idiocy during the last thirteen years at Paris, showing that it is not so rare in France as hitherto supposed. He cites the literature on the subject, remarking that mongolian idiocy has probably often been confused with myxedema, rachitis and athrepsia. In his series described in detail, there were no consanguineous marriages and no special inherited taints, but the advanced age of the mother and the coincidence of the pregnancy with unusual grief, worry or privations seemed to be a causal factor in a certain proportion of the cases. The prognosis is bad, and these children seem peculiarly susceptible to pneumonia and tuberculosis, so that few live to grow up. The cause of the mongolian idiocy is some old definite lesion before birth, some arrest in development which nothing can remedy. All that can be done is to protect the child against catching cold and isolate him away from tuberculosis. Moderate thyroid treatment might hasten the growth, and medicopedagogic measures might play a useful rôle.

37. **Epidemic Meningitis of Various Origins.**—Bézy has been impressed with the number of cases this last year in which meningeal symptoms formed part of the clinical picture. In 11 cases described there was undoubted tuberculous meningitis, in 10 the meningococcus was found; in 5 no germs could be detected. This series of 26 cases in his service is remarkable; he never had more than 5 a year before. He warns that the meningeal reaction does not constitute the whole disease any more than albuminuria is the whole of nephritis.

Archives de Médecine at de Pharmacie Militaires, Paris

July-August-September, 1917, 68, No. 1, 2 and 3

39 *The Interallies Surgical Conference.—p. 1.

39. **The Surgical Conference.**—The 510 pages of this number of the *Archives* present the discussions on eighteen different topics determined in advance. The leading surgeons from the allied armies took part and the work thus represents the consensus of opinions last March and last May, when the two sessions were held. The subjects discussed included the organization of the medical department in the armies of the Allies, the general principles for treatment of wounds, traumatic shock, gas gangrene, fractures, amputations, prosthesis, wounds of joints, of vessels, of the chest, the brain, the spine, the nerves, and of the abdomen, and the laboratory technics for keeping the surgeon posted as to the progress of the wound. Among those who shared in the discussions were Moynihan, Almroth Wright, Depage, Castellani, Arbuthnot Lane, Willems, Nigrisoli, Tuffier, Leishman and Sacquépée. The addresses are all given in French and there are a few illustrations. This number was received at this office Feb. 6, 1918. Another *Conférence chirurgicale interalliée* is now being organized.

Bulletin de l'Académie de Médecine, Paris

Jan. 8, 1918, 79, No. 1

40 *Inflammation of the Glands in the Vestibule of the Larynx. A. Robin and J. Renaut.—p. 20.
41 *Record of Urine Findings. P. Hollande and R. Paucot.—p. 33.
42 *Electric Treatment of Bilharziosis. E. Desnos.—p. 37.
43 *Treatment of Keloid with Creosote. Lesieur.—p. 40.

40. **Laryngovestibulitis.**—Robin and Renaut apply this term to a common form of infectious sore throat in which the sputum is difficult to expel and gives the impression of a foreign body impacted in the vestibule of the larynx, at each breath tickling the epiglottis, and inducing a guttural spasmodic cough with violent efforts at expectoration, sometimes concluding with a sneeze which dislodges the sputum. The

glands in the portion of the larynx above the inferior vocal cords are involved in the inflammatory process. They are vascularized like the salivary glands, and their outlets are in an area abounding in intra-epithelial nerve terminals and hence peculiarly liable to start reflexes. They have studied these glands on the dog, and emphasize the intense phagocytic action displayed by the cells in normal conditions. Gargling does not reach the seat of this gland laryngovestibulitis, so they treat it with a spray night and morning and after lunch and dinner. The fluid which meets the various conditions which they describe in detail is a mixture of 25 gm. sodium salicylate; 5 gm. antipyrin; 80 gm. glycerin and 15 gm. each of cherry laurel water and orange flower water, with 1 liter distilled water. This spray applied perseveringly has cured in from three to four weeks even the most inveterate and chronic trouble of the kind.

41. **Record of Urine Findings.**—The findings in question relate to the freezing point of the urine, especially as determined on wounded soldiers with fistulas. By study of the freezing point it is possible to supervise the functioning of the kidneys. A medical cure is as important as the surgical cure, and measures to realize it should not be neglected after the wound and fistula have healed.

42. **High Frequency Electric Current in Treatment of Bilharziosis.**—Only one case is described by Desnos, and the cure took months, but the success was apparently complete. His idea was that the electrocoagulation would destroy the lesions in the bladder and the heat of the diathermy would kill the ova in the tissues.

43. See Paris Letter.

Paris Médical

Dec. 29, 1917, **7**, No. 52

44 Malarial Psychoses. A. Porot and R. A. Gutmann.—p. 518.
45 *Aseptic Resection of Stomach or Intestine. Gudin.—p. 522.
46 Cirrhosis of Pancreas in Hard Drinker. D. Denéchau and R. Picard.—p. 526.
47 Amputation of the Leg. A. Mouchet.—p. 529.

45. **Aseptic Operations on Digestive Tract.**—Gudin's method ensures automatically asepsis and hemostasis; the anastomosis is done as one step, and no sutures are taken in the mucosa. The blades of the clamp must be long enough to take in a 15 cm. stretch. The pressure is applied gently and progressively by turning a thumbscrew. Then two Kocher forceps are placed on the crushed segment, and exclusively on this, and the resection is made between them. Then the edges of the serosa are sutured together back and forth over the forceps; the forceps are withdrawn, and the ends of the suture material are drawn tight and tied. He gives illustrations showing the various applications of this principle. After the forceps are withdrawn, a grooved sound is introduced through the small hole left and the lumen is worked open before the sutures are finally tied.

Presse Médicale, Paris

Jan. 3, 1918, **26**, No. 1

48 *Functional Paralysis and Contracture. H. Claude and J. Lhermitte.—p. 1.
49 *Detection of Tuberculous Soldiers. E. Sergent.—p. 4.
50 *Treatment of Gonorrheal Urethritis. M. Lacombe.—p. 5.

Jan. 7, 1918, **26**, No. 2

51 *Symptoms from Compression of Nerve Trunks. (Névrodocites et funiculites vertébrales.) J. A. Sicard.—p. 9.
52 *Minor Heart Disease. G. Lian.—p. 11.
53 *Repair of the Tendon Synovial Membrane with Graft from Vein. J. Duvergey.—p. 14.

48. **Importance of Early Neurologic Treatment of Contracture and Paralysis After War Wounds.**—From their detailed and extensive study of nervous disturbances in the wounded, Claude and Lhermitte conclude that the motor disturbances are sometimes the result of reflex action from the wound itself. As this heals, the functional derangement properly treated from the first may disappear with it. If not, these functional disturbances may be perpetuated by a psychic mechanism, and their persistence engenders dynamic modifications in the corresponding nerve centers. These modifications become plainly evident in the sensory, motor and reflex phenomena during general anesthesia. The longer the period during which the functional disturbances persist, the deeper the psychic impression, and the harder it becomes to throw it off. There is no fundamental difference, they say, between the hysteria paralysis and contractures known of old and the motor and functional disturbances in the wounded. The peculiar features of the latter are due merely to the long period during which they have been left to themselves or inadequately treated, along with the special mentality induced by the war atmosphere, exaggerating all psychoneuropathic tendencies. Given specialist neurologic treatment early, before they get ingrained, they promptly yield to it, and never reach the stage of "physiopathic disturbance." Physiotherapy alone is not enough; it requires psychotherapy to be effectual.

49. **Tuberculosis in the Soldiers.**—Sergent reported a year ago that 15 per cent. of the soldiers sent to him to confirm the diagnosis of tuberculosis proved to be clinically free from it. This proportion has increased since to 35 per cent. In another large group are men with signs of tuberculosis but no tubercle bacilli to be found in the sputum. He urges that those in this class should be reexamined at intervals. Some throw off all the symptoms but others finally show the bacilli in the sputum.

50. **Treatment of Acute Gonorrhea.**—As the gonococci lurking in the depths of the urethra are liable to escape the action of the usual local measures, Lacombe applies a gas under pressure. This penetrates into the remotest crevices, and the gas he uses, sulphur dioxid (SO_2) has considerable antiseptic effect while it does not impair the vitality of the mucosa. He generates the gas in the urethra by mixing a solution of 6 gm. of picric acid in 1,000 c.c. of water with a 1.7 per cent. solution of anhydrous sodium hyposulphite. The mixture contains 4 c.c. of the picric solution to 1 c.c. of the hyposulphite solution. The chemical reaction between them generates soluble sodium picrate and the gas, sulphur dioxid. He gives three injections a day during the early stage; if the posterior urethra is involved, he injects a little more of the mixture, 4.8 c.c. of the picric solution and 1.2 c.c. of the other. In chronic cases only one injection a day is made. The injections are not painful in the least, and the 130 patients thus treated were promptly cured, with no recurrence to date. No complications of any kind were ever observed. The most striking results were those obtained in cases long rebellious to other measures. Proper internal treatment, a suspensory and repose, are important adjuvants.

51. **Inflammatory Processes in Bony Passages.**—Analogous to the term "radiculitis," Sicard has coined the term "funiculitis" to express inflammation in the lining of the bony passages in the spine through which the nerve roots emerge. The nerve gets squeezed in the resulting proliferation of bone, fibrous tissue or aponeurosis in or close to the passage of the nerve root just after it emerges from the bony passage. The inflammation of the intrameningeal stretch is known as radiculitis; of the extrameningeal stretch, from the dura mater to the plexus, funiculitis. The pathologic condition of the nerves between the dura mater and the plexus causes pains and sensory-motor disturbances, with contracture of the muscles in the vicinity. With the exception of tabes, zona and acute meningitis, the cases of radiculitis on record should have been labeled funiculitis. Sciatica, coccygodynia and brachial and intercostal neuralgia are funiculitis. The vertebral muscles in the vicinity all contract to relieve the pain; another sign is the exacerbation of the pain when the spine is bent. With tabes and zona, true types of radiculitis, the muscles are not contracted and the pain is not increased by bending the spine. Syphilis prefers the root, tuberculosis and cancer the funiculus. Lymphocytosis in the spinal fluid is a sign of radiculitis; with funiculitis the albumin content is increased but not the cell count. This increase in the albumin comes from the impediment to the return of the venous blood offered by the compression from the inflammatory reaction in the bony passage. Radiculitis interrupts the tendon reflexes, while funiculitis may exaggerate them. Treatment of radiculitis should be general medical measures with or without intraspinal injection, or an operation on the

root or the ganglion. With funiculitis, on the other hand, injection of a cocain-salicylate mixture directly into the contracted muscles and epidural injections are called for with or without surgical measures, to restore ample permeability to the passage.

52. **Disordered Action of the Heart.**—Lian found in about 20 per cent. of 350 men with disordered action of the heart that the cause of the slight disturbance was some comparatively insignificant derangement of toxi-infectious origin. He calls them *les petits cardiaques*, and says that after a few days of rest, it is better for the men to return to light duty rather than to have further repose enforced which only makes them exaggerate the importance of their heart trouble. Treatment can be only palliative in the chronic forms. He tests them with the gymnastic marking-time step and balancing a weight. By this means he has been able to sift out a number of these *petits cardiaques* and return them to light duty only.

53. **Repair of Tendon with Saphenous Vein.**—Duvergey remarks that war wounds involving tendons usually heal with a cicatrix binding down the two stumps of the tendon and fusing into one solid mass the skin, the bone and sometimes the adjacent tendons, but there is little if any retraction. It is necessary to loosen up these adhesions, free the adjacent tendons and bridge the gap between the stumps of the severed tendon. The latter he accomplishes by utilizing the cicatricial tissue already in place. He carves it in the shape of the normal tendon, then cuts it across in the center and works over each stump in turn, the ends of a corresponding segment cut from the patient's own internal saphenous vein, below its junction with the femoral vein. The vein is slipped over the upper stump and the whole is worked up on this stump. Then the two stumps are sutured together again and the lower half of the vein is pulled down over the lower stump until it fits smoothly and forms a smooth sheath for the rebuilt tendon. Seven illustrations show the various steps of the procedure.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 29, 1917, **47**, No. 52

54 *Whole Wheat Flour. E. Feer.—p. 1777.
55 *Harelip. H. Matti.—p. 1785.
56 Rupture of the Biceps. A. Wydler.—p. 1793.

Jan. 5, 1918, **48**, No. 1

57 *Deafmutism in Switzerland. F. Siebenmann.—p. 1.
58 *Differentiation of Smallpox and Chickenpox. Tièche.—p. 14.

54. **Coarse Wheat Flour in Infant Feeding.**—Feer pleads that we should use foods more as Nature provides them, and not denature flour by fine bolting, and vegetables by boiling and throwing away the water in which they were boiled. He has been giving to 100 infants whole wheat flour, up to 87 per cent., and found that those who could bear wheat flour at all thrived on the coarse flour just as well. This was the more surprising as the infants in his service were suffering from various diseases. Only a very few in the series were normal. He is inclined to think that young and old will benefit by the use of the coarser flour, as the war has cut off the supply of finely bolted flour. One great advantage from it is that the teeth will get the ingredients they need for proper growth and repair. The coarse war bread has to be chewed more carefully, and this will aid in warding off decay from the teeth. The prehistoric skulls found in Switzerland have fine teeth, few with any traces of caries, but the biting and grinding edges are much worn. Caries of the teeth has become shockingly prevalent in Switzerland in the last fifty years except in remote cantons where the people live on coarse food with little sweets. He says that Switzerland stands at the head of the countries with defective teeth. The coarse war bread may improve matters in this respect. Good bread should have a hard crust 8 or 10 mm. thick. Another disadvantage of fresh soft bread is that particles adhere to the teeth.

55. **Harelip Operation.**—Matti gives sixteen illustrations showing the technic and fine cosmetic and durable results of his method of utilizing the protruding tissues to close the gap with bilateral harelip.

57. **Deafmutes in Switzerland.**—Siebenmann relates that the number of deafmutes in Switzerland has never been accurately recorded, but the census of 1870 showed 24½ deafmutes to 10,000 inhabitants, while the average for the other European countries is scarcely 8. In the Bern district the figure was 42, in Lucerne 44, and in Wallis 49. The districts in which goiter and cretins are most numerous also seem to be endemic foci of deafmutism. The proportional number of deafmutes seems to decrease progressively from the Alps down to sea level. Only about two-thirds of the deafmutes in Switzerland are found in the institutions for deafmutes; the other third are in institutions for the feebleminded.

58. **Differentiation of Varicella.**—Tièche is in charge of the smallpox hospital and in 1907 he noticed that applying to his own arm vaccine and lymph from patients with smallpox or varioloid induced a constant reaction similar to the Pirquet tuberculin skin reaction. It was a simple matter therefore for him to test on his own arm lymph from patients suspected of smallpox or varioloid. With varicella there was no reaction. He urges physicians to test their own skin in this way and, if it is in a condition of allergy like his skin, they will have thus a simple method for control always with them. In his ten years of experience with it, this test has proved conclusive in 98 per cent. He describes eleven cases here in which the findings were most instructive, and saved all concerned from the annoyance of isolation for smallpox. He points out further that the eruption in the smallpox group usually takes a centrifugal form, spreading to the extremities, while with varicella the location is more centripetal, the abdomen, chest and face being mainly affected. With varioloid the outlines of the efflorescences are roundish, with varicella more of a rosette type. They scrape off easily but it is difficult to scrape off a variola pustule; this is Brocq's *grattage méthodique* test. Sketches are given of the appearance on his own arm of the reaction to the suspected lymph and to the control actual vaccine test, as seen at intervals of from two to five hours in the course of twelve or sixteen hours. He has found a number of other persons with similar allergy that can be utilized for the test inoculation. With none of his sixty varicella cases was there ever a reaction like that of the variola group.

Annali d'Igiene, Rome

October, 1917, **27**, No. 10

59 *Hemorrhagic Icterus. P. D. Siccardi and G. Bompiani.—p. 609.
60 Differentiation of Botryomyces. E. Fattore.—p. 621.

59. **Spirochete Jaundice.**—Siccardi had made a special study of the infectious jaundice in the troops, caused by the *Spirochaeta icterohemorrhagiae*; his death from laboratory infection has recently been recorded. In this article he described a case with exclusively hemorrhagic manifestations. The blood findings showed some of the spirochetes intertwined in pairs. A guinea-pig inoculated died in from three to twelve days with hemorrhagic lesions in the viscera. Other animals inoculated from the guinea-pig developed the typical hemorrhagic jaundice. The symptoms in the young man were those of purpura associated with rheumatic pains in bones, joints and muscles, with swelling of the tissues around the joints—a typical example of rheumatoid purpura with fever of the epidemic jaundice type with the Inada spirochete in the urine.

Gazzetta degli Ospedali e delle Cliniche, Milan

Jan. 3, 1918, **39**, No. 1

61 Linear Gooseflesh. (Dermografismo oripillatorio.) A. Campani.—p. 2.

Jan. 6, 1918, **39**, No. 2

62 Rheumatic Sepsis. U. Baccarani.—p. 11.

Policlinico, Rome

Jan. 13, 1918, **25**, No. 2

63 *Mercurial Treatment of Rat-Bite Disease. E. Borelli.—p. 25.
64 Induced Edema Sign of Heart Disease. G. Galli.—p. 30.
65 The Surgical Service at the Front. G. Gatti.—p. 32.

63. **Mercurial Treatment of Rat-Bite Disease.**—Borelli has only one case to report but the benefit was apparently striking, the local edema, lymphangitis and eruption promptly subsiding. The patient was a frail boy of 13 and a piece

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 70, NO. 11 CHICAGO, ILLINOIS MARCH 16, 1918

OBSERVATIONS ON MEDICAL CONDITIONS IN ROUMANIA

H. GIDEON WELLS, M.D.
CHICAGO
AND
ROGER G. PERKINS, M.D.
CLEVELAND

Members of the American Red Cross Commission to Roumania

Roumania entered the war, Aug. 27, 1916, and rapidly drove her main forces through the Carpathians into Transylvania, meeting at first but little resistance. A part of her troops were occupied in guarding the Danube against the Bulgarians, it being understood that the Dobrudja would be defended by others. This not being done, the Roumanians crossed the Danube to threaten the Bulgarians. They were obliged to retreat, and also the western forces were driven back to the Carpathians. Here they held for some time, but the German forces brought up against them were far too large and they were forced back to the plains of Wallachia. With this began the exodus. Bucharest was bombarded extensively by aeroplanes, and many left the city some weeks before it finally fell, November 23; but the main flight did not begin until the Germans had approached close to the city. The court was transferred to Jassy, which became, therefore, the particular goal of the refugees.

It is estimated that from half a million to a million people fled from Wallachia into Moldavia ahead of the army, which resisted as best it could, and finally held its ground with Russian help along the Sereth line, which nearly corresponds with the original line between Moldavia and Wallachia.

The situation in December, 1916, was, then, as follows: In Moldavia, a territory not much larger than the state of Massachusetts, were gathered much of its normal population of 2,800,000 and from half a million to a million refugees from Wallachia, nearly half a million Roumanian soldiers, and approximately a million Russians. All this added population came in with little or no supplies of food or clothing, and under the mental collapse that results from overwhelming defeat, loss of home and property, and the depression of flight and privation. The transportation was so inadequate that a large part of the refugees came on foot, many walking for twenty or thirty days. The soldiers were in bad condition from fighting a retreat the whole length of Wallachia, with a demoralized commissary and a country raided of food by the refugees ahead of them. Moldavia was so far from the original firing line that extensive hospital provisions had not been made, and hence those that existed were quickly overwhelmed by the influx of wounded and sick soldiers brought back from the retreating front. Every school and suitable large building was converted into a hospital, but there was lacking the necessary equipment for these improvised hospitals. Beds were sometimes found or made, but more often sacks of straw or loose straw had to suffice. Above all, lack of blankets was serious, for winter was already on and no adequate provision for fuel had been or could be made — such transport as there was had more pressing uses than fuel cartage. And with this almost doubled population the food supply began to become serious, for even when there was an excess of food in some places its transfer to the cities was almost impossible. Moldavia was always the less rich part of Roumania, its mountainous northern part, its too dry summers, and its large swampy districts causing it to compare unfavorably with the wonderful richness of Wallachia, although on the whole Moldavia is a good farming and grazing country. But there were far from adequate supplies for this overwhelming influx of soldiers and civilians.

The transportation breakdown was of threefold origin: Railroads were but little developed in this part of the country. Highways were abundant and often excellent, but the automobiles had largely been lost in the retreat, and nearly all the oil supply of the country was in the captured territory. The chief means of transport was normally by oxen and horses. The former had been in large part taken by the army and lost, and an enormous number, estimated at 3,000,000, had been sold to Russia and Germany, especially the latter, at fancy war prices before Roumania entered the war. The horses had mostly been requisitioned and many of them lost. As to manufactories, for all practical purposes there were none whatever in Moldavia, and so nothing could be made to fill even the most pressing needs. So here this horde of exhausted, demoralized, underclothed, underfed people, crowded into a country unprepared in every way to rise to the situation.

With the hosts in flight came not only famine, but also disease. At first there were only the ordinary diseases, with a high incidence of pneumonia from exposure, and a high mortality among those with chronic diseases, including especially pellagra, of which there were estimated to be from 60,000 to 80,000 cases before the war. Famine and privation wiped out these weaklings with great rapidity.

The first epidemic disease to appear was cholera. This came out in scattered foci in Dobrudja during the retreat, and was rapidly spread through the country. The Roumanians had had some experience with this disease, for during the Bulgarian campaign in 1913 there had been a sharp epidemic in the army, about 6,000 cases appearing in four months, when it stopped quickly under vaccination. Hence they were in a way prepared, and in spite of the extreme disorganization they soon instituted general vaccination and in a short time the cholera was under control. Professor Cantacuzene had brought his laboratory to Jassy and prepared the vaccine here. (In passing, it should be remarked that everywhere in Roumania we have been impressed by the greatness of the asset constituted by a high grade bacteriologist with a large number of well trained students and assistants. Here and there we found a man trained by Cantacuzene, and always he represented a place where better work was being done, and where invaluable services were being rendered to improve the public health.)

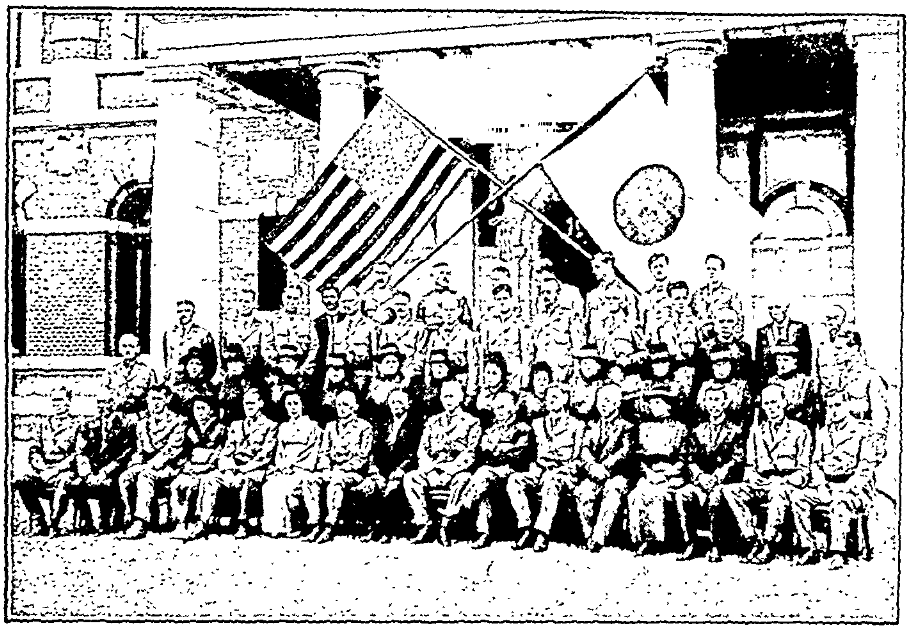


Fig. 1.—The American Red Cross Mission to Roumania, with officials of the Japanese Red Cross before the Red Cross headquarters, in Tokio. Americans on front row, from left to right are: Major Francis W. Peabody, Boston; Major R. G. Perkins, Cleveland; Major H. Gideon Wells, Chicago; Major Bernard Flexner, Chicago; Lieut.-Col. Henry W. Anderson (Chairman), Richmond, Va.; Major Arthur Glasgow, Richmond, Va.; Miss Florence Patterson (head of nursing unit), Burlington, Wis.; Major Robert Bryan, Richmond, Va.; Major W. D. Kirkpatrick (head of medical unit), Bellingham, Wash.

The testimony as to the complete prophylactic efficiency of anticholera vaccination is unanimous. Among the infected the mortality was about 25 per cent., which was aided by the extremely unfavorable conditions, especially the cold, for we heard of cholera patients with frozen feet. The army medical men seem to feel that treatment was not of much effect in cholera, even including saline infusion. Alkali therapy, as recommended by Sellards, was not tried. Since the close of the epidemic no more cholera has been seen, and Dr. Mironescu of Bucharest, now in Roman, had for several months been examining soldiers without finding a single cholera carrier.

TYPHUS EPIDEMIC

But as the cholera died out, and the growing cold and famine of the winter added to the misery of the people, a new and more deadly foe appeared. In January appeared cases of a febrile disease, not corresponding to diseases familiar to the Roumanian physicians, and which was variously diagnosed as grip, typhoid, malaria and recurrent fever. Only a few suspected typhus, and as one man puts it: "We tried to convince ourselves that it was merely grip." Typhus is not an endemic disease in Roumania, and most of the physicians there had never seen a case. A few cases had been imported from time to time from Serbia and Bulgaria, and it is probable that there have always been occasional cases in the Carpathians. Just where the disease arose in the recent epidemic is disputed; but apparently the first recognized cases were in Dobrudja and in the vicinity of Focsani. But with the shifting and crowding of refugees and soldiers, the spread of the disease was so rapid that its origin was untraced and unimportant. Together with the typhus, and in fact, slightly preceding it, came another louse-borne disease, recurrent fever, which attacked equally great numbers and caused more than half as great a mortality. The first considerable numbers of recurrent fever cases were diagnosed in January, although it is now believed that among these, and indeed among all the cases listed as recurrent, were many typhus cases, for in most places laboratory diagnosis, by the simple procedure of finding the spirillum in the blood, was not possible. Typhus was not recognized in considerable numbers until February, and reached epidemic proportions only in March, rising to a maximum in May, while recurrent fever was at its maximum in April.

And now arose a situation that can only be compared to the descriptions in Defoe's "Journal of the Plague Year." The stricken population fled hither and thither to escape infection, or to find food, warmth and shelter, and so they spread the disease until it is probable that nearly a million were infected

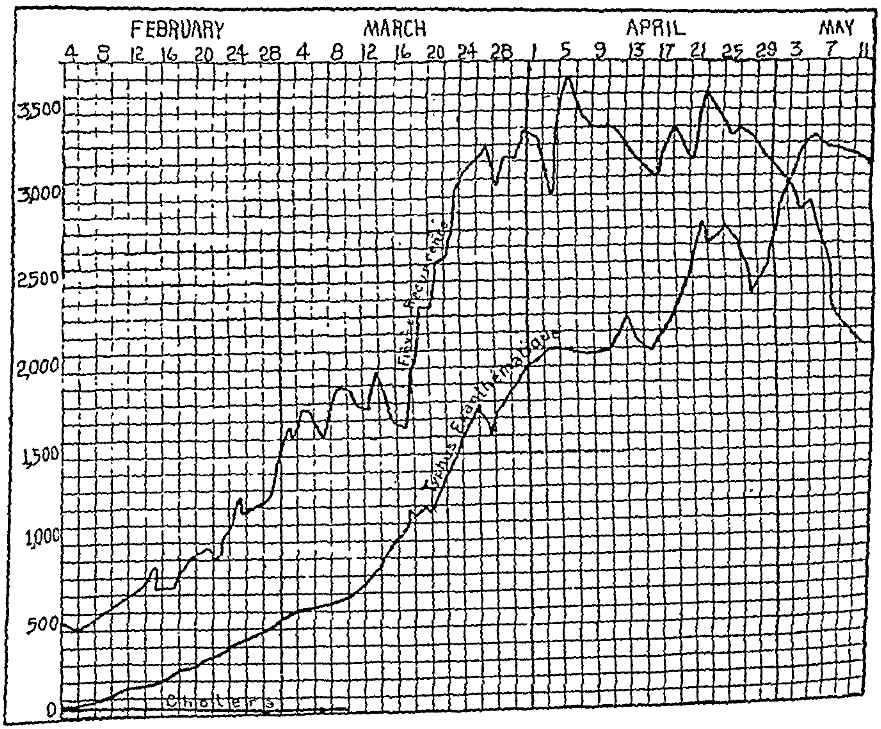


Fig. 2.—Incidence curves of typhus and relapsing fever in the Second Roumanian Army. The parallel character of the curves is of interest in view of the fact that both are louse-borne diseases.

in a population, including the armies, of something less than 5,000,000. Stories are told of horrors piled on horrors — of trains stagnating on congested tracks, while in box cars the people were packed so closely together that those who died could not fall and were removed only when at last the cars were emptied; of morning searches of the railroad stations and freight yards for the bodies of persons who had crept into corners and expired; of daily sights of people dying on the streets of Jassy, some from disease and some merely from starvation and exposure. Every hospital and improvised barrack was swarming with typhus cases, and as at first the rush of trouble was too great to permit of prophylaxis, infection spread throughout the buildings, taking not only wounded soldiers, but also doctors, nurses, orderlies and all divisions of the hospital personnel. In all places the same story of horrors is told. In all, the shortage of beds was so great that usually two beds were placed together to hold three patients across them, while often two more patients were laid on the floor underneath. So shorthanded were the hospitals that sometimes it was hardly possible to do more than to pick out the dead to find place for those who were still living. It is said that in the little city of Jassy as many as 500 died in a day. General Antoniu thus describes the condition in one lazaretto at this period:

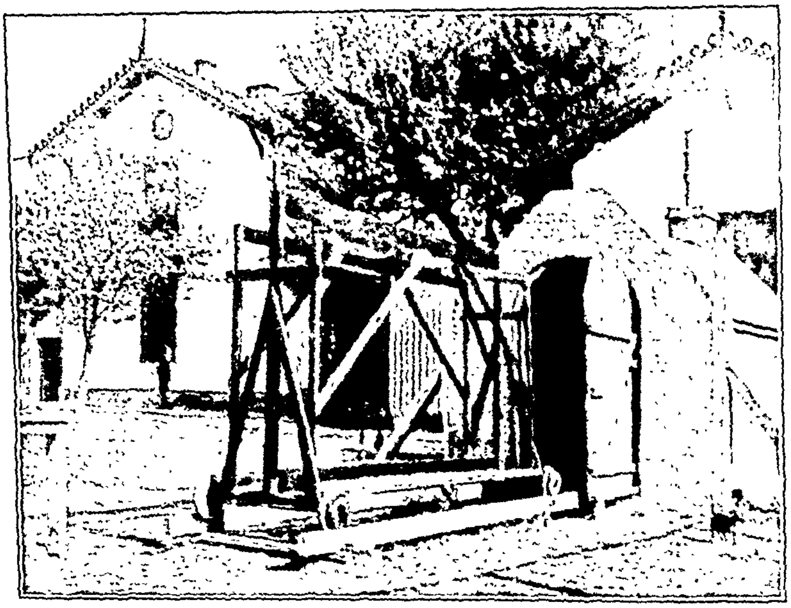


Fig. 3.—Serb type of disinsector, as employed at the hospital of Dr. Manilescu at Strunga.

> It was not a hospital but a morgue, where the sick perished pell-mell in their fecal matter, lying on the ground, or at best on a bundle of straw. One saw side by side cases of scarlatina and the first cases of typhus. It was really an aspect which recalled Dante's Inferno, and one certainly might have written above the door the famous phrase "Lasciate voi ch'entrate ogni speranza." The only latrine, which served both cholera patients and the others, as well as the hospital personnel, was surrounded by a zone of fecal matter five yards wide.

Fortunately, not all places were so badly cared for as this one, but at the best the situation was desperate.

The typhus was on and inside the hospitals before one knew it, and had infected the wards before deparasitization could be introduced efficiently. Hence the morbidity among the physicians was high, and, as always is the case, the overworked physicians always furnish a higher mortality figure than their patients; here 40 per cent. of the infected physicians died, 200 out of an entire medical force of about 1,200, while the general mortality figure was only about 20 per cent. How many nurses and other hospital workers died we could not learn; but there were many, and we heard of no shirking of the horrible tasks and dangers of the pest-ridden hospitals. Even the queen insisted on her visits to the hospitals, and still allowed her adoring but infectious subjects to kiss the royal hand.

From the start the fight against the epidemic was hampered by lack not only of trained workers, but of materials, often of the simplest sorts. To check typhus the only material needs are baths, petroleum, hair cutters, fire and clean clothes; but even such simple requirements could not always be met. In one place no petroleum or other insecticide could be obtained; in another, wood was lacking for fires with which to deparasitize the clothes, and in some practically everything was lacking. Of course these conditions were soon remedied in the hospitals, but it took longer in the barracks and especially in the villages. The practice of the peasants of huddling close together in winter for warmth was exaggerated by the scarcity of food, fuel and warm clothes, and so the spread of infected lice increased. Especially disastrous were the first barracks erected for the retreating army. To gain warmth they dug into the ground with only the roof above the soil, and the men slept on a layer of straw covering the floor, lying close together for warmth. In these places infected lice had an uninterrupted march from one end of the place to the other, and the men came down by scores. And so in the course of a month the disease had spread throughout the country, adding a supreme misery to already unbearable conditions.

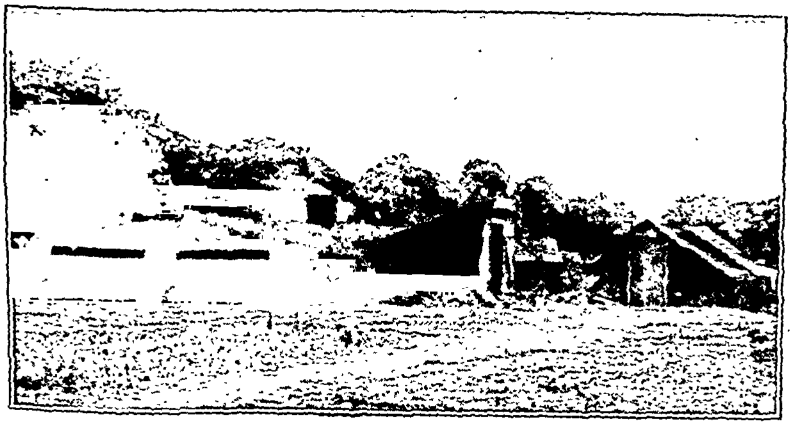


Fig. 4.—Russian type of disinsector on left, communicating with underground baths, at Adjud.

It would seem that, in spite of the unfavorable conditions of nourishment and care, the epidemic was not of extreme virulence, for the mortality is estimated at only from 16 to 20 per cent. It is generally accepted, however, that the disease was of a predominatingly nervous type, and even now one sees many striking types of late nervous manifestations in typhus convalescents. Many of the reports of these cases have been collected and studied in his hospital for nervous diseases at Jassy, by Dr. Devaux of Paris. From the start the nervous system seemed generally to be most severely affected; the spinal fluid showed a high pressure and considerable leukocytosis, at first small lymphocytes and some polymorphonuclears, later predominatingly large mononuclears, and this polycytosis often continued for several months, at least in cases showing nervous lesions. At necropsy a gelatinous edema of the meninges is the most characteristic finding. Many of the deaths seem to be the result of bulbar paralysis. Even the cases of cardiac collapse seem to depend on involvement of the cardiac nervous mechanism, for the myocardial degenerations commonly described in typhus are not exhibited in these cases. Dr. Dimitri Jonescu states that the classical picture of suprarenal insufficiency, with a very low blood pressure, is often seen. Pneumonia was a common fatal complication. The number of cases of severe nervous lesions that we saw in the hospitals six months after the epidemic gives striking evidence of the profound injury to the nervous system, both central and peripheral. There are cases of actual hemiplegia, with and without partial aphasia, severe psychoses, and especially many paralyses with atrophies of the shoulder girdle and upper limbs. Devaux says that there are probably 200 cases of atrophy of the forearm, usually resulting in a typical main en griffe.

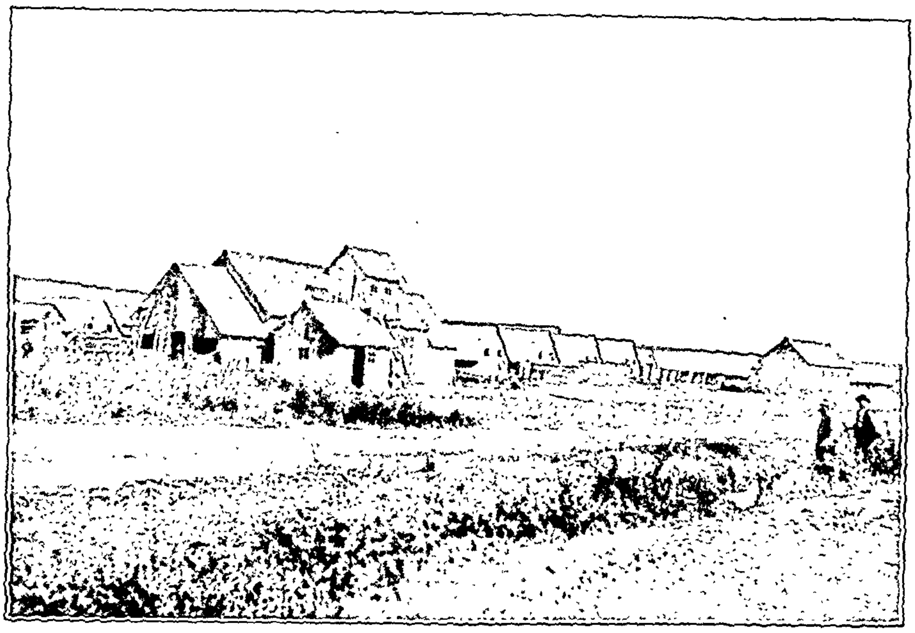


Fig. 5.—Typical barrack hospital, the chief type erected last summer. The walls are double, the space between being filled with earth for warmth in winter. The largest building in the foreground is the bath establishment.

Apparently nothing of great value was discovered in respect to treatment, which was necessarily symptomatic. In cases of collapse with low blood pressure, epinephrin is said to have been useful. Because of the immunity of convalescents to typhus, several attempts have been made to treat severe cases with the serum of convalescents; but the evidence for the value of this procedure is not convincing, although its logic entitles it to a thorough trial.

As to the early diagnosis of typhus, in addition to the usual symptoms of an acute febrile disease, the following points have been particularly noted by different observers: Often the tongue is covered with a bluish coating (like the porcelain tongue described in grip by Dr. Faisans). An important feature is the congestion of the face and redness of the conjunctivae. The symptoms may be brought out in the early stages by cupping: "On the colored ground where the cup has been applied, spots of bluish-violet coloration become apparent" (Antoniu). The eruption may also appear on the palate and fauces before it is visible on the skin. There is usually a considerable leukocytosis (from 20,000 to 30,000); and a distinct increase in mast cells, up to 1 per cent., is considered to be of diagnostic value (D. Jonescu). It is generally agreed that there is no regular relation between the severity of the eruption and the prognosis.

The crest of the typhus wave was reached in May and fell at the same rate at which it rose, so that in July there were still many cases. When we made our tour of the country in the last of September, the epidemic may be said to have disappeared, yet everywhere there were scattered cases to be seen. There was practically not a single hospital for contagious diseases that did not show one or more cases, and in some as many as ten or twelve were found. Even in Jassy there were said to be one or two cases, but we did not see them. In a few places we saw house epidemics—from two to four patients from one family. It was estimated that there were at this time about 200 cases in Roumania, nearly all in the small villages; the second army reported thirty cases. This was the vital point of the situation—the disease had been spread throughout the country, and the observed quiescence was far from an extinction of the epidemic, but represented merely the usual summer decline with

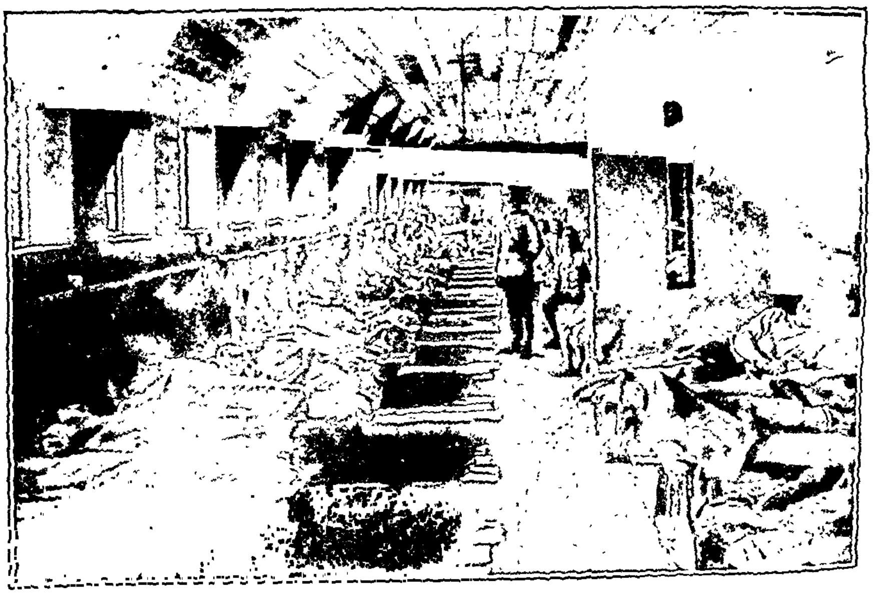


Fig. 6.—Typical interior of barrack hospital. The beds are made of three planks, affording a slight spring. The usual mud or clay stove is shown on the right.

the assumption of more hygienic outdoor life and the warm temperature that reduces the activity of the louse. Everywhere the disease was smoldering, waiting only for the resumption of winter conditions to break forth again. Beyond doubt there will be typhus again this winter — how much depends entirely on how effectively the disease can be restricted in each place in which it makes its appearance.

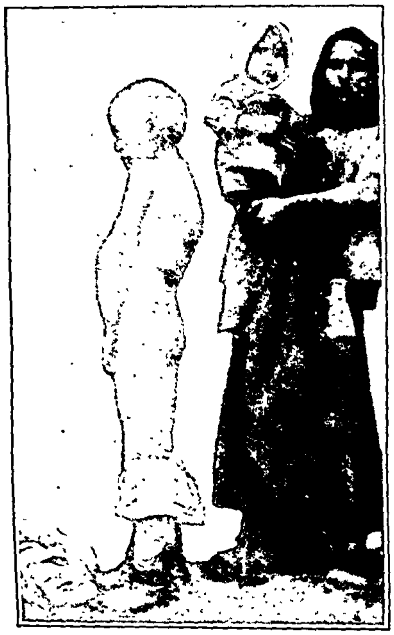


Fig. 7. — War dropsy; swollen feet and abdomen.

The peasants, who now almost exclusively harbor the disease, lived with few exceptions in small cottages and closely crowded together, especially in the winter. In common with all ignorant people there is always a tendency to hide the sick in order that they may not be taken away from the family to the hospital. The peasants have been known to hide typhus patients in the heavy thatched roofs of the houses. These conditions require that frequent house-to-house visits be made by people familiar with the population, who know how many there should be in each house and hence can detect such evasions.

Before the war there was an organized medical supervision of the country, which was divided into numerous districts, each under a chief physician and the necessary staff of division doctors. At present there remain in the hands of the Roumanians but thirteen of these districts, and the war has so demoralized the medical organization that the normal conditions of health supervision are approximated only in spots. The heavy demand for physicians in the army, and the loss of at least 200 physicians from typhus, has drawn away from the civil service nearly all the better men, so that now there remain for the civil population only a few, and to a large extent these are but the survival of the unfittest. Fortunately, there are a few exceptions to indicate what invaluable service a few good physicians can render.

RECURRENT FEVER

As mentioned before, an epidemic of recurrent fever accompanied the typhus, and was nearly as serious. Although a louse-borne disease, it presented some differences in epidemiology that are not readily explained. In the first place the recurrent epidemic preceded the typhus epidemic by about a month, both in its rise and in its fall. Also it affected the rural population relatively much more than the city population, although the vital statistics indicate that it was recorded earlier (November and December) in the cities. It seems to have spread less within the hospitals, especially among the physicians and attendants, than did the typhus. This epidemic of recurrent fever seems to have been unusually severe, with a mortality of about 10 per cent. For this high figure there are several reasons. In the first place, recurrent fever has a slow and protracted convalescence, as contrasted with the relatively rapid recovery from typhus. In a population devoid of proper food for invalids, insufficient clothing, and so little heat that it is reported that people froze to death in the hospitals, the successful convalescence from recurrent fever was difficult and often impossible. Physicians repeatedly told of losing many patients from cold and starvation, although the starvation was often from improper food rather than from an actual absence of any food whatever.

Many lives were lost because of the absence of adequate supplies of arsphenamin (salvarsan). It is agreed that arsphenamin is of great value in this spirochetal disease, and had it been possible to give every patient an adequate amount, the mortality would undoubtedly have been much reduced. But there was little on hand, and no more could be obtained. It is probable also that many of the cases recorded as recurrent were actually typhus with an irregular course, for under the existing conditions adequate laboratory diagnosis was difficult or impossible, although ordinarily the spirillum is readily detected in the patient's blood. The deaths were usually the result of complications, chief of which were the cachexia of cold and hunger, pneumonia and dysentery. Severe mouth infections were common, leading in some instances to massive necrosis of the inferior maxilla. Suppurative parotitis and otitis media occurred frequently. These complications probably depend on inadequate care of the patient's mouth, understandable under the prevailing conditions. As might be expected of so protracted a disease, tuberculosis has recently been appearing among those who recovered from recurrent fever last spring. For some reason this takes particularly the form of tuberculous pleurisy.

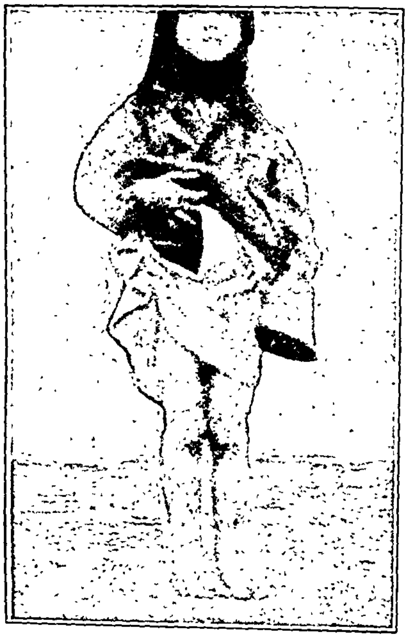


Fig. 8.—War dropsy; swollen feet.

EXTERMINATION OF VERMIN

Since Nicolle, Ricketts and others demonstrated the louse transmission of typhus, the war has given many opportunities to demonstrate conclusively that this disease can be absolutely controlled by exterminating the lice. In Roumania, physicians repeatedly recounted the fact that as soon as they had deparasitized (or, as the French say, disinsected) the patients in the hospital, and also all entering patients, the spread of the disease within the hospital was entirely checked. In some hospitals in which the organization and facilities were adequate to meet the situation at the start, they got through without a single instance of crossed infection in the hospital or infection of a single member of the staff. Now in some well organized hospitals the typhus cases are not quarantined at all; for, in the absence of lice, typhus is not a contagious disease.

At the time of our visit to Roumania, every hospital was equipped to disinsect the patients, many of them admirably; and with very few exceptions all hospitals under Roumanian or French control were doing their work well. Because of superior organization, the army hospitals are especially well prepared, and it is reasonably certain that there will be no considerable number of typhus cases in the active army. Even far to the front, bathing equipment has been installed, often admirable. A sick or wounded soldier inevitably passes through a series of hospitals or triages, each of which looks after his disinsection. Hence, even the men at the front are not often infested with vermin, and they will surely be cleaned up in the passage back to the base hospital. Soldiers too severely wounded for thorough disinsection are cleaned as well as possible, and tagged as not being safe, so that they may be properly isolated and cared for subsequently. The routine plan of disinsection is usually as follows: At the first triage or hospital sufficiently removed from the front, the patient is stripped in an anteroom of the bath, his hair cut short, and the entire body anointed with petrol or some other parasiticide, after which a hot shower or tub bath is given. He is then given a clean hospital garment, or, if he is to travel farther, he is kept in a warm room until his clothes can be disinsected and returned to him. This disinsection of clothes is accomplished by heat, and the types of oven used are fundamentally three. One is practically a steam autoclave, which is efficient but generally of rather limited capacity, and usually it takes some time to get up the pressure. Many of these autoclaves are also seriously defective in that the clothes enter and are removed at the same end, which makes possible infection from parasites left outside the oven. Furthermore, the apparatus is expensive, complicated, and usually must be imported. More practical under existing conditions are the dry heat disinsectors of the Serb or Russian types. The former is usually built above ground, of brick or concrete, with a double wall that permits of an air space in which the heated air circulates. The clothes are hung on a rack mounted or hung on wheels so that it can be pushed into the oven and pushed out again, preferably with exit and entrance doors at opposite ends. These ovens are effective and practical, but are not altogether simple of construction. More readily built, and apparently becoming more popular, are the disinsectors of the Russian type. These are merely underground houses, with dirt and sod covering, in which the clothes are hung on racks and the chamber heated by hot air carried through in sheet iron pipes. These can be built by the peasants with almost no material, and have been found satisfactory. In some instances the heat escaping from the disinsector is used to warm the adjacent bath house.

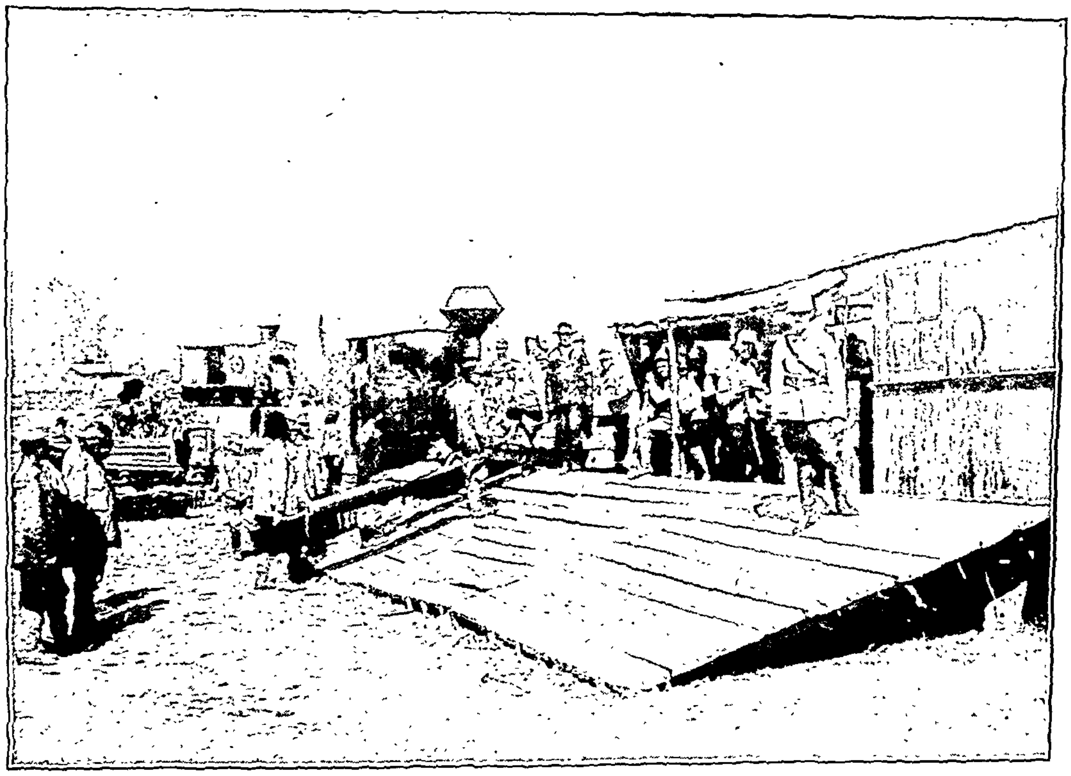


Fig. 9.—Hospital train on narrow gage road near the front.

An important factor in the success of these procedures lies in the fact that the Roumanian peasant has no inherent objection to cleanliness, nor does he consider lice either necessary or desirable accompaniments of physical well-being, as some other nationalities are reported to maintain. Furthermore, the discipline of the Roumanian army is as nearly perfect as could be wished, and the Roumanian soldier is a willing, patient, friendly worker, who is remarkably skilful in working with wood and plaster, building barracks, hospitals, baths, disinsectors, furniture, etc., all with few materials and great success. Hence the situation as regards epidemics in the army is excellent; and as there is little active fighting in the winter, when the epidemics threaten, there will probably be entirely adequate hospital facilities for the army, with probably much space available for the civil population. Many new barrack hospitals have been erected with double wooden walls, between which a thick layer of dirt is placed to insure warmth. Every large schoolbuilding, and many villas, warehouses, etc., having been converted into hospitals, this part of the situation is well provided for. The danger, so far as the army is concerned, is in the reserves quartered in the villages where they will be exposed to the infections arising in the civil population. And it is in just this zone, where the soldiers, refugees and evacuated families are added to the native population, that the overcrowding and underfeeding are worst.

OTHER INFECTIOUS DISEASES

Of the other infectious diseases, the most important is typhoid. During the past summer this was quite extensive everywhere in the country, arising in isolated foci rather than in distinct epidemics. This suggests that the infection came from carriers rather than from infected large water supplies, and it is highly probable that flies play an important part in the distribution. The country is infested with a plague of flies that is bad beyond description. The natives say that this is a new condition resulting from the disorganization of war. Horses and oxen are quartered everywhere, and there is no transport for removal of garbage and filth. Toilet facilities are commonly most primitive or nonexistent, and the peasants do not seem to be concerned about the flies anyway. In some of the hospitals we found conditions as to flies as bad as it is possible to imagine — typhoid and dysentery patients lying with their heads and faces, their food, their bedclothes, and often their excreta, swarming with flies. As much milk and cheese are eaten by the peasants, this source of infection is probably important. Presumably the conditions would be much worse but for the extensive prophylactic vaccination that has been practiced. Here, as elsewhere, the value of this procedure has been repeatedly and abundantly demonstrated. An especially striking case is furnished by the present high incidence of typhoid among the Roumanian officers; for example, in one hospital there were 156 cases of typhoid, of which 100 were in officers and but fifty-six in private soldiers. The reason for this lies in the fact that for soldiers vaccination was compulsory, but optional for the officers, and many of the latter refused it because of the temporary discomfort. The civil population has been vaccinated as much as possible, and recently in Jassy this was stimulated by issuing sugar cards only to persons who had typhoid vaccination certificates. It seems that in many instances vaccination does not protect for more than six months, numerous cases appearing after that time. In the vaccinated, typhoid has been mild and of brief course.

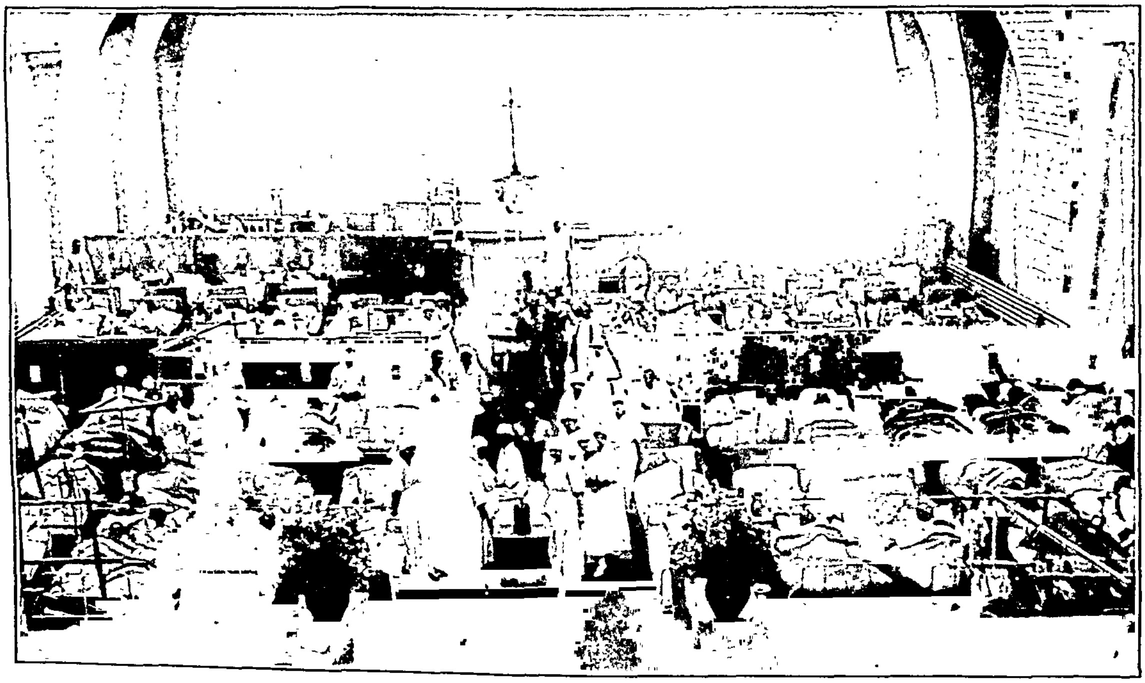


Fig. 10—Interior of hospital in private indoor tennis court at Ghidijeni. The Princess Marie, of Roumania, is standing at the right of the table.

The water supply of the larger Moldavian towns is excellent. The supplies of Galatz, by sedimentation and filtration of the muddy Danube water, of Piatra Neamt, by ozonization of a fine mountain water, and of Jassy, by underground collection of mountain water filtered through natural gravel beds, might each be used as models of city water supplies of different types. Their existence is evidence that there is at least some public health policy in Roumania.

We found a moderate amount of bacillary dysentery, but not enough to constitute a serious condition. In some places we were told that the infections were of the Shiga, in others of the Flexner type. There is no amebic dysentery.

During the past summer there has been a widespread epidemic of a mild form of icterus, it being estimated that there have been two or three hundred thousand cases. It involves all strata of society, in all parts of the country, and hence dietary factors can be excluded, although at first the use of black bread was suspected of being the cause. When four members of the royal family, all living in different places, came down with the disease, the black bread and starvation theories were given up. The disease begins with a febrile attack, often quite sharp and suggesting typhoid. After a few days the fever falls and the icterus appears, wherewith the subjective symptoms, of which prostration is often severe, improve. The patient is then usually able to be about after a few days, despite an icterus that is often quite marked and usually persists for two or three weeks, during which time the patient is somewhat apathetic, dull and depressed, as in the usual catarrhal jaundice. Undoubtedly this is a specific infectious disease; but several competent bacteriologists have sought for the etiologic factor in vain. The disease suggests often a mild typhoid or paratyphoid, and in a few cases paratyphoid bacilli have been cultivated from the blood and spleen. But as this has been obtained exceptionally, and as typhoid and paratyphoid infections may result in icterus, it is possible that these cases were not of the prevailing type of icterus, but merely cases of paratyphoid with jaundice. The disease has of itself no mortality; a few icteric patients have died of other diseases or complications. It has nothing except the icterus in common with the Weil's disease type of icterus in which spirochetes are found. No spirochetes have been found in Roumanian cases, and apparently the severe form of icterus hemorrhagica does not occur here often if at all.

Two infectious diseases common in other parts of the world have spared Roumania — epidemic meningitis and poliomyelitis. Both have been rare during the war. It is even said that scarlatina, which is reputed to be exceptionally severe in this country in normal times, has been less severe than usual; but we could secure no accurate information on this. There are occasional and increasingly frequent cases of smallpox, which hitherto was an almost unknown disease; but the population seems to be generally well vaccinated.

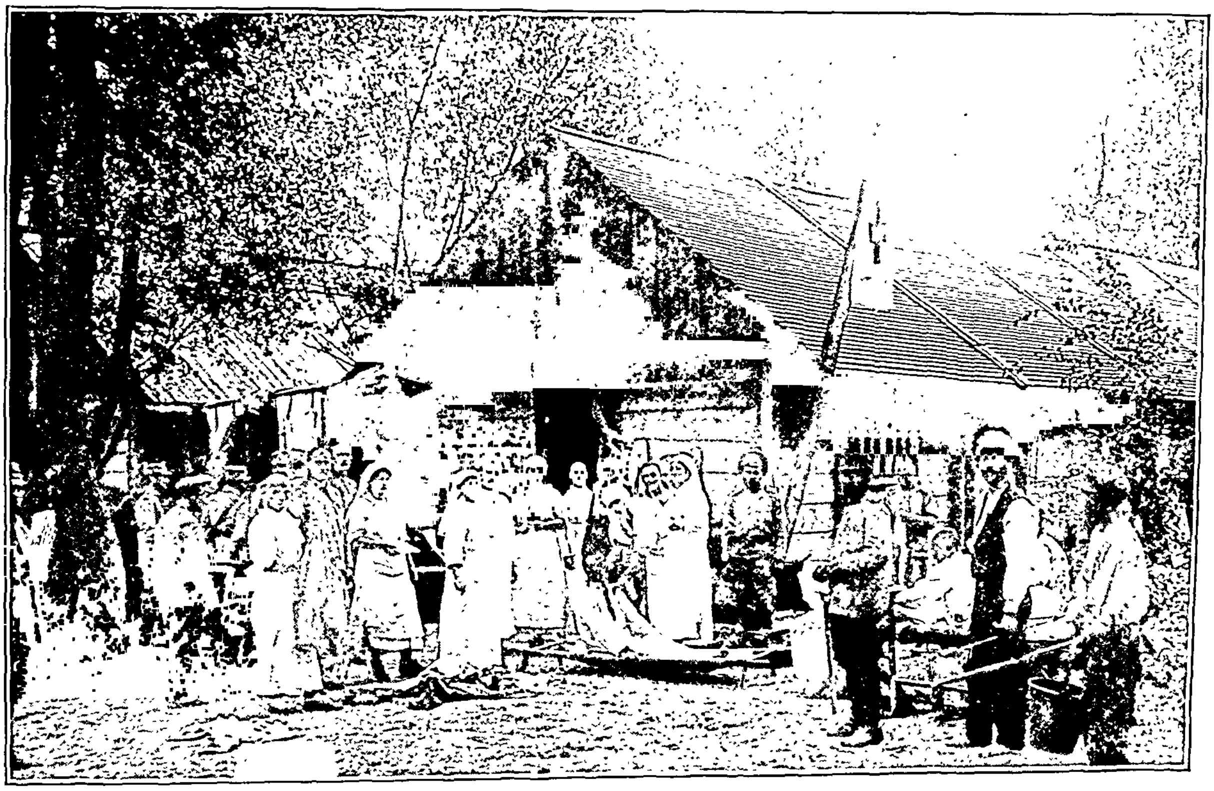


Fig. 11.—Typical Red Cross hospital near the front.

Malaria has always been prevalent, but not of a malignant type. It does not seem to have been augmented during the war.

DEFICIENCY DISEASES

One of the most serious conditions is presented by the deficiency diseases. Pellagra, as stated before, has always been common, presenting the usual identity of distribution with a preponderatingly maize diet. Here no one questions the etiologic relation of maize and pellagra, the only question being whether or not disease or deterioration of the maize is responsible. Apparently, the Roumanian peasant eats maize only in two forms — to a slight extent as parched corn, but chiefly as mamaliga, which is nothing but a rather solid corn meal mush, made of too coarsely ground meal, often ground at home in a small wooden crushing machine and then with mortar and pestle. Usually this serves as the basis of nourishment, the chief accompaniment under normal conditions being a white cheese, made usually of sheep's milk, and of good flavor. Another favorite dish is a sour vegetable soup made with a stock prepared by fermenting bran (usually wheat, but sometimes rye or maize), which has a pleasant sour taste. Even in peace times the peasant eats little meat, but each family ordinarily has numerous chickens, ducks and geese, and a sow with her family, from which they get a small amount of meat and some fat, although most of these food supplies are sold. Smoked fish also are much used as a source of protein and fat, and beans are eaten extensively. It is said that the peasants who get such a mixed diet as is indicated above do not develop pellagra, and this disease rarely if ever arises in city dwellers, with whom mamaliga is not a chief article of diet. But, according to the prevalent belief, when the diet becomes for some time largely restricted to mamaliga with few accessories, pellagra appears. It is generally stated that the disease is now exceptionally prevalent, and assuming an unusually acute form. Most noteworthy is its frequent appearance in young children — we saw groups of war orphans in which the majority exhibited pellagra, and this is distinctly a new development. Also we observed much more pellagra among the refugees and evacuated population than among the people living in their own homes, which again testifies to its relation to food deficiency. The mortality among the pellagrins is very high, for they have little resistance to either infection or exposure.

Not only is the nourishment of the Roumanian now deficient in quantity, but, especially among the peasants, it is greatly deficient in variety and quality. A person may have enough corn to supply the theoretical number of calories, or to satisfy the more acute pangs of hunger; but evidently human beings cannot live long with corn as the sole, or even as the chief article of diet — as MacCollum showed was true even for cattle. And it is to be remarked especially that under the existing conditions as to milling and cooking, a very large proportion of the maize that is eaten is not utilized, as demonstrated by the enormous, bovine-like evacuations, containing large fragments of corn grains, found everywhere in the frontier districts. Evidently the passage of these undigested masses plays havoc with the intestinal mucosa, leading to dysenteries of chronic and exhausting character.

Along with the acute pellagra there was beginning to appear in September, and apparently now for the first time, a severe form of edema. This resembles clinically an acute nephritis; but the urine is free from albumin. Usually the edema is preceded by an attack of diarrhea, at first with ten or twelve movements a day, then half as many, and continuing from one to three weeks before the edema develops. This involves the face and hands, but is more marked in the lower extremities. It is observed exclusively among those suffering severe privations, especially among the refugees and the evacuated, and among the same class of people that fall victims of pellagra. Presumably it is the same condition that the Germans have described under the suggestive name of *Kriegsoedem*. Being a deficiency disease, a relation to the hydropic form of beriberi is suggested and is probable; but we could secure no evidence of the occurrence of neuritis. We were told that about 50 per cent. of these patients recover on a proper diet, but they are extremely susceptible to all infections and die if exposed only a little to cold. When the edema appears in a pellagrin, death ensues quickly.

Scurvy has not been so serious as it is said to be in the Russian army. Possibly this is because the Roumanian peasant has usually secured a fair amount of fresh vegetables in his diet under even the worst conditions. Numerous physicians, however, have reported that scurvy seems to be increasing, and this disease is now feared because much of the normal supply of peas, beans and fresh vegetables, while still green, have been used by the Russian armies as fodder for their horses, and hence a deficiency in these foods is anticipated.

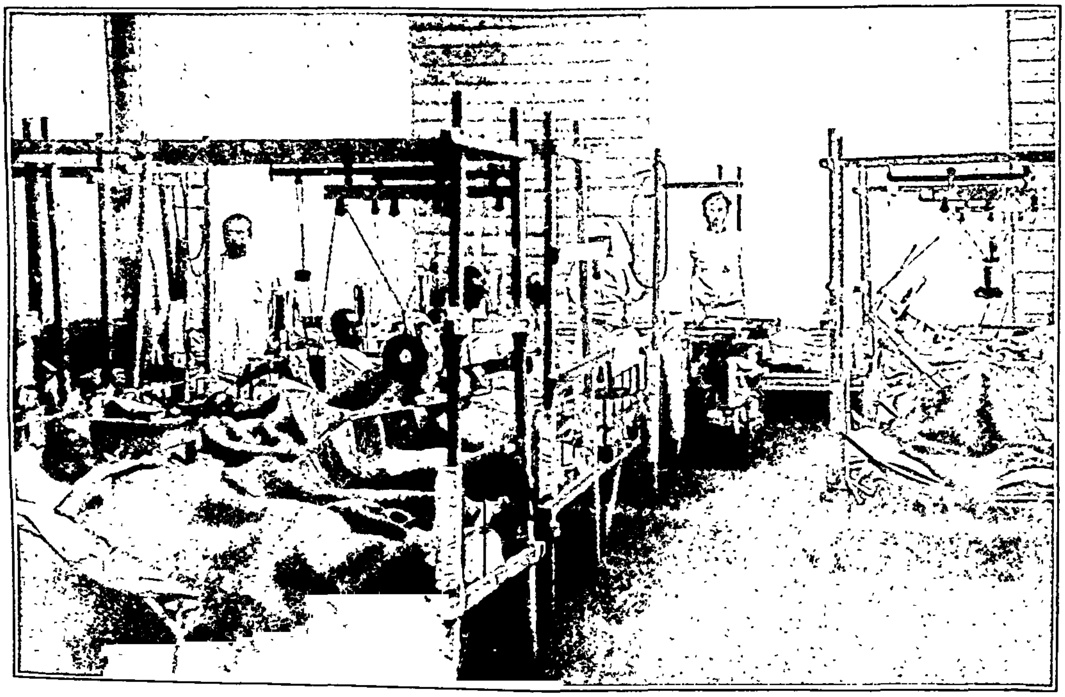


Fig. 12.—Fracture ward in hospital at Ghidijeni.

These deficiency diseases were even in September and October playing havoc among the refugees and the evacuated population. In the villages and camps where they were crowded, as many as twenty in a room, we found many of them dying solely because of the insufficiency of proper food. The sights we saw in some of these places were tragic beyond belief—women and children swollen with famine dropsy, ulcerating with acute pellagra, emaciated to skeletons with dysentery. One dreads to contemplate what the conditions will be when cold weather comes, for reports in November and December indicated that they were growing progressively worse.

OTHER SPECIAL DISEASES

Other special diseases do not seem to be of great importance. Tetanus is rare, probably because the soil is not heavily manured and antitoxin is generally given prophylactically. Gas gangrene is also uncommon. Trench foot occurs, but less often than on the western front.

Tuberculosis seems not to have been a particularly serious plague in Roumania before the war, despite the habits of anaerobic existence often practiced by the peasants. There has never been a systematic campaign against tuberculosis; but just before the war a beginning was being made in the establishment of a dispensary system, and two or three sanatoriums. There seems to have been an increase observed since the beginning of the war, although part of this may be ascribable to more general physical examination of soldiers and recruits. Tuberculous pleuritis and adenitis are especially frequent, and closed forms of tuberculosis predominate, which supports the theory that the Roumanian has a good resistance to tuberculosis. As mentioned before, it seems to occur particularly often in those who have had recurrent fever.

From the foregoing summary it can be seen that the two greatest dangers for Roumania, from the medical standpoint, are typhus and the deficiency diseases, especially the former. The Roumanians are entirely familiar with the situation and know how to cope with it. All they need is a little material help in the form of supplies, and some supplemental medical reinforcements. A nation which can arise from a crushed condition such as existed last December, fight through two such plagues as cholera and typhus, bear the burden of a vast, inert, hungry foreign army, and with the aid of a thousand stimulating and inspiring Frenchmen reestablish itself so that seven months later it can hold off the concentrated attacks of Mackensen's army and pile up from 60,000 to 80,000 German casualties is entitled to all respect and to every possible help. As a matter of fact, all that Roumania asks is to be given sufficient aid to keep the breath of life in her people — this done, they can be counted on to withstand the enemy and to develop themselves steadily in strength and efficiency. Their heroic reorganization and resistance despite apparently insurmountable difficulties constitutes one of the most splendid episodes of the war. They are certainly worth keeping alive; but the vital statistics show that this is at present far from being done, for the death rate averages fully five or six times the birth rate in the towns that we investigated.

RECOMMENDATIONS

To meet these problems, we therefore recommended that: A sufficient number — about 100 — thoroughly competent Roumanian physicians should be detached from the military service and detailed for the reorganization of the civil sanitary service and its proper maintenance until the end of the war. These physicians should be selected by the civil sanitary service from men known by them to be competent for this special work. A suitable personnel of sanitary orderlies should also be detailed from the army to act under these physicians, and should be selected with great care from persons having had experience in this line.

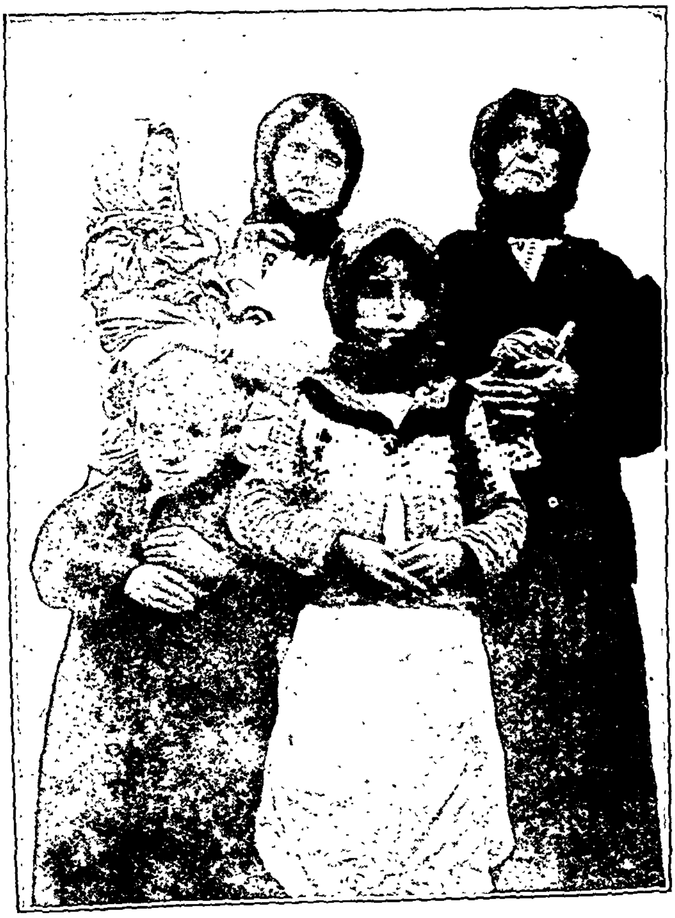


Fig. 13.—Group of refugees. Grandmother and two grandchildren with pellagra. Infant eating parched yellow corn from the cob.

All military hospitals, wherever situated, should be thrown open to civilians for the care of typhus-infected persons or suspects. The military disinsectors, baths and bath trains should be available for the civil authorities to the end that they may be worked on full time and may supply the needs of villages accessible to the railroads and near the hospitals. The disinsectors and baths of the civil sanitary service already in existence should be more fully used, and the incomplete ones finished as soon as may be. Automobile transportation to carry the peasants from the villages to the trains and to other places where disinsection is practiced should be supplied in adequate amount and with suitable personnel. A chief of disinsection should be appointed with authority over all the means available for combating typhus, with such transportation facilities that he can supervise and control the entire work.

Fig. 14.—Members of the staff of Professor Kitasato's laboratory in Tokio. Reading from left to right: Professors Miyajima, Hata, Kitashima and Shiga.

Certain of these orders were already nominally working, but practically in only one or two small areas; finally new orders were issued, and Major Bordea, formerly chief hospital inspector in the civil sanitary service, was appointed in charge of the work. At the military hospitals and barracks the disinsectors and baths were put at his service, together with twenty-eight bath trains, formerly used only by the military.

It had been thought necessary to ask for the appointment of a number of American surgeons to replace the men released from the front; but in the absence of offensives and in the uncertainty of conditions, especially in regard to the Russian troops, this became inadvisable, as there were actually enough Roumanian surgeons to care for the work without interfering with the efficiency at the front. It was further planned to avail ourselves of a group of motor ambulances detached to our service from the Siberian Corps of the Russian Red Cross; but the cessation of hostilities freed sufficient ambulances and trucks so that the work could be carried on with the material available. Captain Bakeman, who had been with the American state department at Moscow, and who, both through his training and as a sanitary engineer and his experience in the Serbian retreat, was eminently suited to this work, was appointed to carry on the work in association with Major Bordea at the departure of Major Perkins.

Provided, on the one hand, there is no serious offensive on the part of the enemy requiring the withdrawal of the surgeons released to care for the wounded, and on the other hand, that it is not necessary for the civil population to evacuate the country, the physicians, the means of disinsection and the transportation facilities at present available are such that the epidemic of typhus during this winter, while it cannot be entirely avoided, should be of a very moderate degree.

As the conditions of famine and lack of clothing were such as to make the resistance against disease, especially against typhus, very low, plans were also made to establish distribution of food, both in connection with the disinsection in the villages and as a separate function in the districts near the front. Transportation conditions in Russia and the impossibility of obtaining material in the United States made this very difficult; but about 3,500,000 salt fish were obtained from Archangel, and a number of carloads of cornmeal, sunflower oil and other supplies were acquired in Odessa, Moscow and elsewhere. At the time of the departure of Major Perkins, distribution of the material, together with clothing, acquired partly through the offices of the American Red Cross Commission to Russia and partly through the activities of our own staff, had been begun; but at the very best it would affect only a small proportion of the people. It was hoped, however, that it might be possible to purchase and bring in more supplies through the same agencies used to get the first lots.

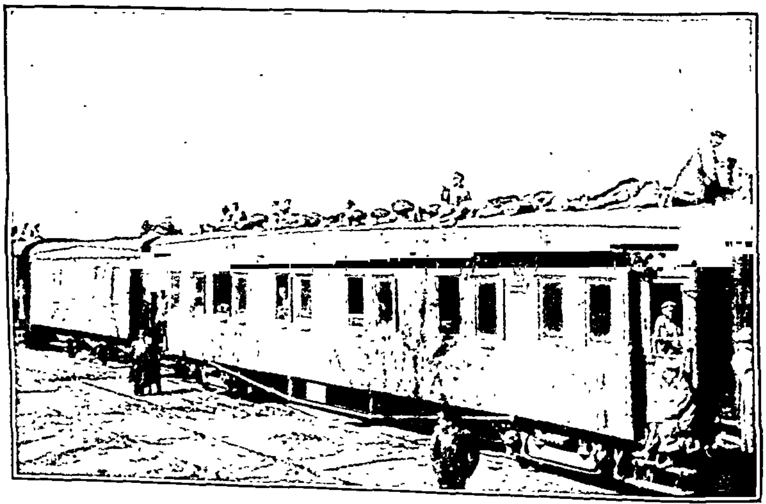


Fig. 15.—Private car of Red Cross Mission, swarming with Russian soldiers on roof and steps. All trains in Russia were thus overloaded, and generally packed inside to standing room limit.

SUMMARY

The conditions in Roumania, as noted by us, showed a terrific lack of suitable food and clothing, and a rather widespread distribution of typhus cases throughout Moldavia, merely waiting the development of winter conditions to start up a new epidemic. To meet these conditions we attempted to unify the three existing medical services of the country to meet the typhus menace, and succeeded in having placed in control a single one of their own men, who could carry on the work with the advice and cooperation of the American mission but not under its orders. We also endeavored to procure enough food and clothing to popularize the enforced disinsection to some degree by small gifts to the disinsected, and to take the edge off of the famine in the worse districts. In the second week in December the work had been begun and, if not interfered with, should have the result of keeping the epidemic moderate and of saving many from death by famine, provided the interval before the country is once more accessible is not too long delayed.

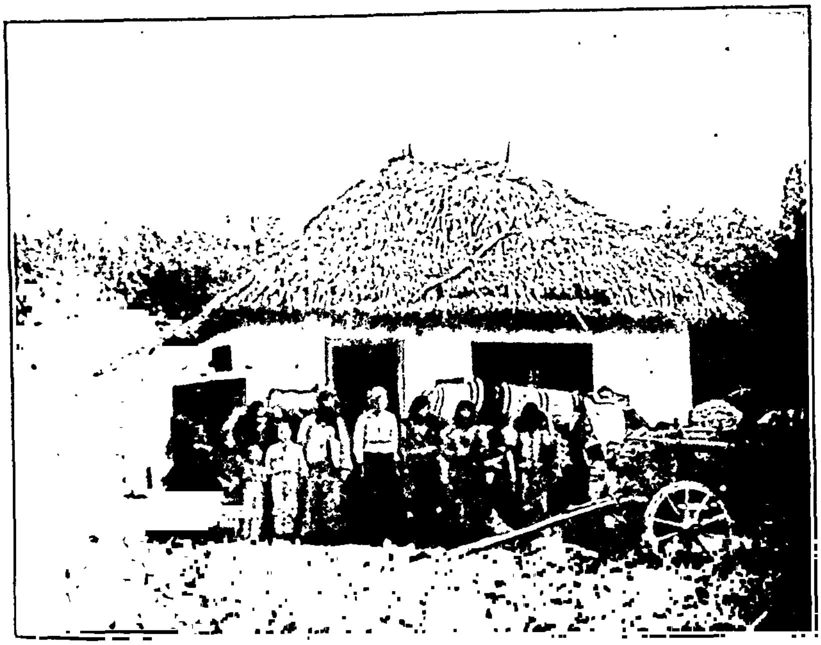


Fig. 16.—Typical peasant's cottage and refugees.

The hospital at Roman under the charge of Kirkpatrick, in addition to its efficient surgical and medical work, in which it had established a model for all Roumania, offered every assistance to the plans against typhus, acting as one of the centers of distribution and of education.

Comparison of Draft Rejections.—The statement sometimes made that the average of health of the young men of the country is lower than it was at the time of the Civil War, as shown by the percentage of rejections in the recent selective conscription, has been disproved by the showing of Provost-Marshal-General Crowder in his report to the Secretary of War. Of the 2,510,706 men examined in the first call of the present draft, 730,756 were rejected on physical grounds, which is 29.11 per cent. In the Civil War 31.69 per cent. of the men drafted were rejected. Commenting on this editorially, the *Ohio Public Health Journal* quotes General Crowder to the effect that in view of the advance in standards of medical diagnosis since the Civil War, the figures indicate a decided improvement in the physical condition of the young men of the nation.

AQUEOUS SOLUTIONS OF POTASSIUM AND SODIUM IODIDS AS OPAQUE MEDIUMS IN ROENTGENOGRAPHY

PRELIMINARY REPORT

DONALD F. CAMERON, A.M., M.D.
Fellow in Surgery, University of Minnesota; Assistant Surgeon, M. R. C., U. S. Navy
FORT WAYNE, IND.

Emulsions of the insoluble salts of bismuth and barium have proved to be very satisfactory mediums for the roentgen examination of the gastro-intestinal tract. Emulsions, however, are not so satisfactory for similar examinations of the genito-urinary tract, in which it is essential to have a stable, homogeneous medium of as low a viscosity as possible. Nontoxicity and opacity to the roentgen ray are, of course, the prime essentials for such mediums. Nontoxic colloidal solutions of heavy metals, also even a few emulsions, such as that of silver iodid, have proved to be quite satisfactory. But on account of some of their physical properties, not to mention difficulty in their preparation, none of these mediums has proved to be ideal.

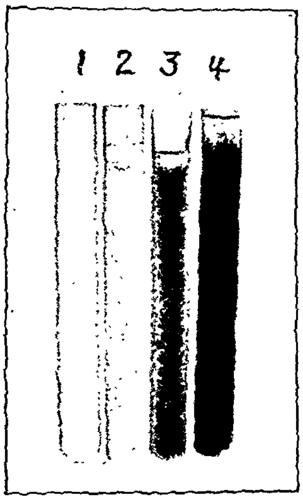


Fig. 1.—Roentgenogram of solutions of varying strengths. Dilution or strength: 1, water; 2, one-eighth; 3, one-quarter; 4, one-half. A 50 per cent. aqueous potassium iodid solution is called full strength.

In the spring of 1915, Burns published his first report of the use of thorium nitrate in pyelography. This solution has a number of advantages over the mediums in common use before. This solution can be prepared with very little difficulty, since it is necessary only to neutralize with sodium hydroxid the aqueous solution of thorium nitrate, in the presence of a sufficient amount of sodium citrate to prevent the precipitation of the thorium. Burns[1] later made an extensive report on the preparation and use of this solution, which has proved to be very satisfactory in pyelography. Salts of thorium, however, are often unobtainable at drug firms without a special order, and some care is necessary in making a satisfactory solution. A more common and inexpensive substance whose aqueous solution is neutral would be preferable.

A year ago, while I was considering systematically the common chemical substances that might be used for this work, soluble salts of bismuth, if suitable solutions could be made, and potassium or sodium iodid seemed most promising. Bismuth, being a heavy metal, was known to be opaque to the roentgen ray, and should be satisfactory if a neutral, nontoxic solution of one of its salts could be obtained. Potassium and sodium iodids seemed promising since they form a neutral solution in water, and theoretically any iodin-containing substance should be opaque to the roentgen ray, since iodin has a high atomic weight.

Stable and practically neutral solutions of bismuth can be made with some difficulty, it being necessary to have a high concentration of sodium citrate or of Rochelle salt present to prevent the precipitation of the bismuth. Even this does not prevent the precipitation in an absolutely neutral solution. It is necessary to keep the solution either slightly acid or alkaline in reaction. However, with such a solution, excellent pyelograms were obtained in the lower animals. But it would not be practicable to use such a solution in routine procedures, because of the difficulty in its preparation, but chiefly on account of the fact that the soluble solutions of bismuth made seemed to have a slightly irritative action. While this was being more thoroughly investigated, I was called in active service in the Navy, and the problem was dropped.

Recently, however, it has become possible, with the assistance of Dr. Charles C. Grandy, to investigate the properties of aqueous solutions of potassium and sodium iodids.

A 50 per cent. solution of potassium iodid, made of potassium iodid, 50 gm., and distilled water, 50 c.c. was found to be almost completely opaque to the roentgen ray. The solution is perfectly clear and is strongly saline in taste but not irritating to the tongue. It has a low viscosity, can be readily sterilized by boiling, and is miscible with urine and blood without causing any precipitation or coagulation. The opacity of more dilute solutions was tested. For convenience, a 50 per cent. solution is called "full strength;" one volume of this diluted with one volume of water is "half strength." It is important to note that this "half strength" solution contains more than 25 per cent., by weight, of potassium iodid, owing to the high specific gravity of the 50 per cent. solution used in the dilution. A "half strength" solution casts a very dense shadow, and that of the "quarter strength" is well defined. Figure 1 is self explanatory. It was also found that similar solutions of sodium iodid were just as satisfactory.

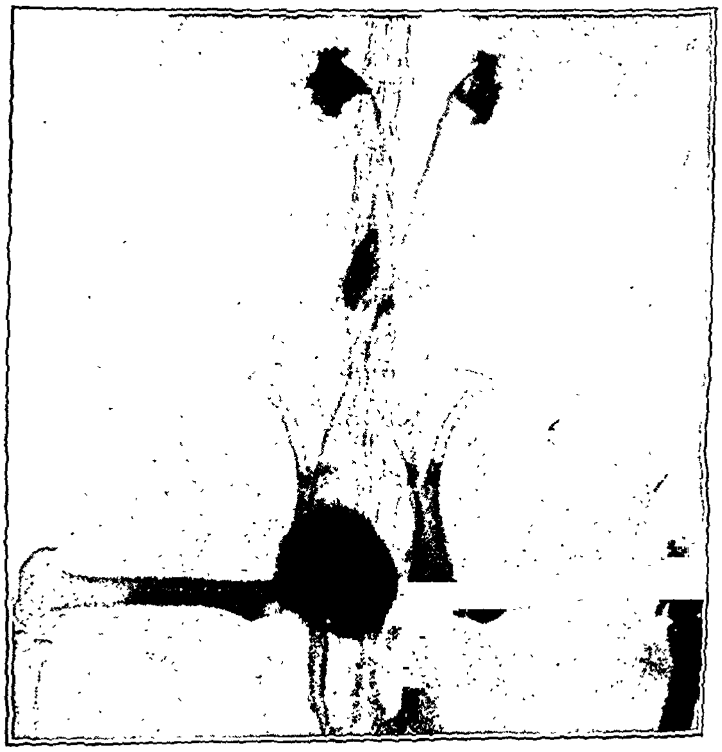


Fig. 2.—Guinea-pig urinary tract filled with a 50 per cent. potassium iodid solution. There is some extravasation at the point of injection. The injection was made under some pressure, a procedure that should never be employed in the human subject.

The important question as to the possibility of these solutions causing toxic effects or local irritation is being thoroughly investigated. Though from the nature of these substances no such effects are anticipated, it cannot be stated now that they are entirely innocuous. We may say, however, that we have used solutions of high concentration in the kidney pelvis of lower animals, and have used a 15 per cent. solution in the human bladder, and no undesirable effects of any nature have been encountered. Excellent roentgenograms were obtained in all instances.

---

[1] Burns, J. E.: Thorium: A New Agent for Pyelography, Bull. Johns Hopkins Hosp., 1916, 27, 157.

From theoretical grounds, the only undesirable feature of these solutions is their high osmotic pressure. An ideal solution should be practically isotonic with urine. But hypertonicity is not always a serious objection. The thorium solutions used, for example, are strongly hypertonic. Since the opacity of elements to the roentgen ray seems to be a function of their atomic weights, it is evident that the iodid of a heavy metal would be much more opaque than that of potassium or sodium. Such solutions of the same opacity as that of the corresponding alkali iodids would have a much lower osmotic pressure. However, the heavy metal salts tried were found to have seriously objectionable properties, such as being insoluble or forming precipitates when mixed with urine or possessing irritating or toxic properties. It is worthy of note that the opacity of the silver iodid preparations that have been commonly used is probably due to the iodin rather than to the silver content.

Theoretically, a suitable solution of some substance like iodoform would make an excellent medium for pyelography. This substance would be very opaque in dilute solutions because of the presence of three atoms of iodin in each molecule. Emulsions of iodoform have proved to be satisfactory as far as opacity is concerned.

Within as short a time as possible, Dr. Charles C. Grandy, roentgenologist at the Lutheran Hospital, Fort Wayne, and I will make a more extensive report of the clinical use of aqueous solutions of potassium and sodium iodids in roentgenography.

SUMMARY

1. A 50 per cent. solution of potassium or sodium iodid of the depth ordinarily used in roentgenographic work is almost completely opaque to the roentgen ray. If such a solution is for convenience called "full strength," the half and quarter strengths cast very definite shadows.

2. These solutions are made with little trouble or expense. They are stable, saline to the taste, but not irritating except on areas freshly denuded of epithelium. They are miscible with urine and blood without causing precipitation or coagulation. The simple aqueous solution is neutral in reaction and is easily sterilized by boiling.

3. Good roentgenograms of the human bladder filled with a 15 per cent. potassium idodid solution, and of chronic sinuses filled with a 50 per cent. solution, have been made. No bad effects have been noted. A 25 to 30 per cent. solution should be sufficient for good pyelograms. Caution, however, should be observed in the use of these solutions in human subjects until further study of their effects has been made.

Owing to the uncertainty of military service, it was thought best in order to establish priority to publish now this preliminary though incomplete report.

SACRAL TABES WITH THE CLINICAL PICTURE OF A LESION OF THE CONUS MEDULLARIS

REPORT OF CASE

G. B. HASSIN, M.D.
Attending Neurologist, Cook County Hospital
AND
E. P. CARROLL, M.D.
CHICAGO

In tabes dorsalis, the pathologic changes are usually confined to the posterior roots of the dorsolumbar region. Such a localization of the morbid process very well explains the classical signs and symptoms of this disease, as loss of knee jerks, shooting pains, and disorders of sensibility in the lower limbs. Yet there are cases of tabes in which the lesion principally affects the cervical, the lumbar or the sacral regions, and it was customary with the older authors to classify various forms of tabes according to its localization. Thus they differentiated cervical, dorsal, lumbar and sacral tabes. As a rule, however, such a classification does not always hold good, as the symptomatology of tabes is mostly due to scattered or, as Redlich[1] pointed out, to segment-like lesions of the cerebrospinal system, as evidenced, for instance, by the simultaneous occurrence, in the majority of tabes cases, of lost tendon reflexes, Argyll Robertson pupil, cerebral nerve involvement, anesthesia of the chest, etc. Therefore, Leyden insisted that a classification of tabes, based on the seat of the pathologic process, is not justified. True as Leyden's assertion may be, cases are occasionally encountered in which the clinical picture is so unusual that a localization of the disease process should be specified. Here belong cases of so-called sacral tabes in which the lesion is principally confined to the sacral roots. In the case reported, the exclusive involvement of the latter produced a classical picture of a lesion of the conus medullaris, that is, of that portion of the spinal cord which comprises the lower three sacral segments.

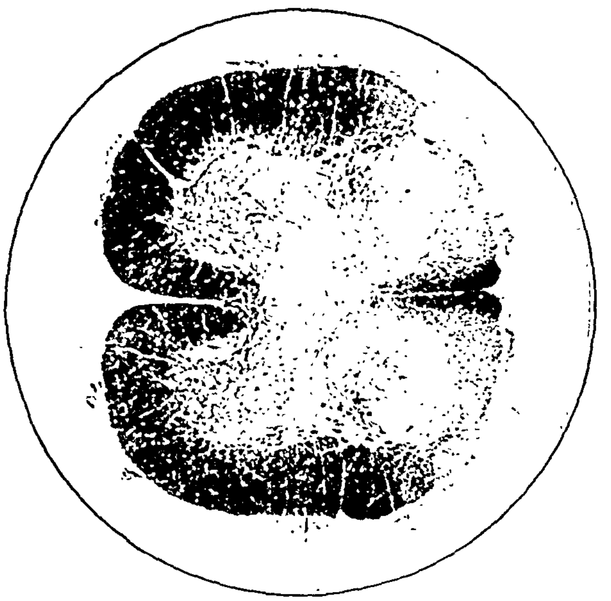


Fig. 1.—Fourth sacral segment in a case of sacral tabes. The posterior columns show on each side of the septum a triangular bundle of normal fibers (median triangle or dorsomedial sacral bundle).

---

[1] Redlich, Emil: Die hinteren Wurzeln des Rückenmarks und die pathologische Anatomie der Tabes Dorsalis, Jahrb. f. Psychiat. u. Neurol., 1891, 11.

REPORT OF CASE

History.—A white man, aged 42, a laborer, entered Cook County Hospital, Oct. 8, 1917, in the surgical service of Dr. Daniel Eisendrath, complaining of incontinence of urine and feces, and ulcers of the feet and buttocks. About six and one-half years previously he had been seized with sudden pain around the body at the level of the hips, and general numbness from the navel down to the ends of both lower limbs. At the same time he lost control of the bladder and the rectum, and the feet became swollen and painful. A month afterward, ulcers appeared on the heels and buttocks. About a year before the patient entered the hospital, a fresh ulcer developed on the sole of the left foot, near the heel. The ulcers did not cause any pain, but did not yield to treatment, and were progressively getting larger, though the patient was able to walk up to the time of his entrance to the hospital. In addition to the incontinence and ulcer formations, the patient suffered from a phimosis of six years' duration. Any other diseases except a sore on the penis about seven years before, were denied.

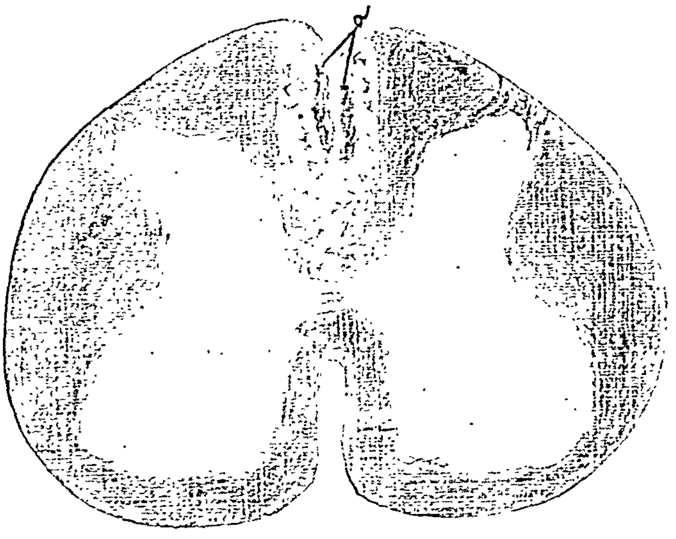


Fig. 2.—Third lumbar segment in a case of sacral tabes. The light area of the posterior columns contains two bundles of normal fibers (*a*, the oval field of Flechsig).

Examination.—The patient was very poorly nourished and anemic. The mentality, speech, gait, cranial nerves, heart, lungs, and the muscular and bony systems showed no abnormalities, aside from slight atrophy of the left leg. On the sole of the left foot, near the heel, was a large sinus discharging foul-smelling pus. About 2 inches from the anus, on each side, were two large ulcers, the size of a silver dollar, with indurated edges, also discharging pus. On the posterior surface of the right thigh there were two large scars with irregular outlines (gummas?), and the penis appeared red and swollen, and showed an adhesive, indurated phimosis. The left foot was cold, cyanotic and edematous. Active and passive movements and the muscle power in the upper and lower extremities were good; the pupillary, skin and tendon reflexes, except the Achilles tendon on both sides, were present, and the sensibility was normal all over the body exclusive of a saddle-like area that involved the perineum, anus, superior and inferior gluteal regions, scrotum, penis, and the posterior-inner surface of both thighs (about 5 inches), which regions showed a total anesthesia. The blood and spinal fluid both gave a negative Wassermann reaction, but other serologic findings have not been recorded. According to the hospital records, the patient had been an inmate of the institution four years previously with practically the same findings as recorded. They also revealed that the troubles started without any apparent cause—there was no history of trauma, syphilis, alcoholism, or of any other illness. During the patient's stay in the hospital, marked symptoms of pyelonephritis developed to which he succumbed, November 5, about four weeks after admittance.

Necropsy.—We thus had before us a patient that for six and one-half years had been continuously suffering from rectal, bladder and various trophic disorders. During these six and one-half years the symptoms were practically in a stationary state, and, coupled with the saddle-like anesthesia indicated a lesion of the conus medullaris. In view of the history of a sore on the penis, and of the presence of suspicious scars on the thighs, we thought that the conus lesion was of syphilitic origin, probably in the nature of a syphilitic myelitis. The postmortem examination revealed, among other findings, a nodular syphilitic sclerosis and a slight saccular dilatation of the root of the aorta, a chronic hypertrophic cystitis, an acute suppurative ureteropyelonephritis and macroscopically a perfectly normal spinal cord. There were no signs of myelitis of any kind, hemorrhages, meningeal involvement, or tumor. The sole striking feature was an unusual smallness of the spinal cord; but its configuration and the relation between the white and gray matter were normal. The removed portions of the spinal cord (the lumbosacral and dorsal regions) were serially studied with various stains, as the Weigert-Pal (for myelin fibers), Alzheimer-Mann method (for glia changes), Bielschowsky (for the axons) and Nissl modifications (for ganglion and possible infiltration cell changes). The study of the spinal cord with all these staining methods revealed a typical tabes solely confined to the sacral region. Only the sacral portion, especially the last three sacral segments of the spinal cord showed the presence of so-called local tabetic degeneration signs in the form of a degeneration of the entrance zone, or Lissauer's zone, of the collateral fibers, etc., while in the lumbar and dorsal regions there was a secondary degeneration of the middle portion of the posterior column (Goll's column). The posterior columns in the sacral region, as seen on the photomicrograph (Fig. 1), show this middle portion to be intact. It has the shape of a triangle stretching from the posterior periphery of the spinal cord down to the posterior commissure and is described under various names, but commonly known as a "median triangle" or "dorsomedial sacral bundle." The rest of the posterior columns appear pale and degenerated, being the place occupied by the degenerated intraspinal fibers of the posterior sacral roots, very few of which are left undamaged. In the lumbar portion, beginning with the fifth, upward to about the second, the degenerated area of the posterior columns showed two small bundles somewhat oval in shape, occupying the place along the posterior septum and known as the oval field of Flechsig (Fig. 2). In the upper lumbar and lower dorsal region (Fig. 3), these fibers were pushed to the periphery, and in the lower middle dorsal region they totally disappeared.

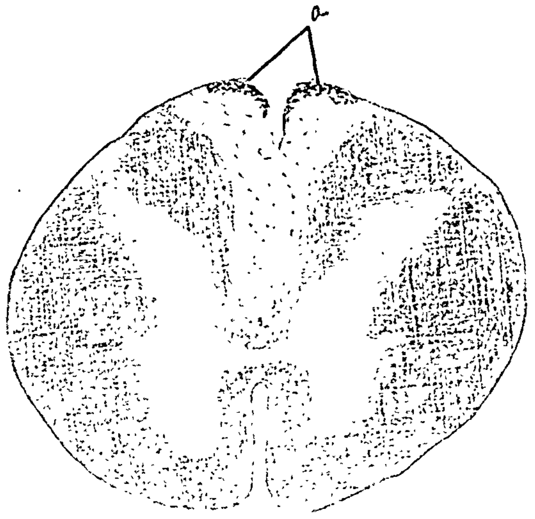


Fig. 3.—Twelfth dorsal segment: degeneration of Goll's column (light, bottle shaped area), with undamaged fibers occupying the periphery (*a*). In the lumbar region they occupy the center of Goll's column, and are known as the oval field of Flechsig.

COMMENT

As this is not the place for anatomic discussions, we shall refrain from further descriptions of the pathologic findings, which are clear enough from the appended illustrations. We wish only to point out that the nature of the median triangle of the sacral region and of the oval field of the lumbar have been repeatedly discussed in the neurologic literature, and the conclusion generally arrived at is that they have nothing to do with the fibers of the sacral roots, as suggested by some, but that they contain descending branches of posterior root fibers from above, that is, from the lumbar, dorsal and, as Marburg[2] thinks, even from the cervical region. According to some observers (Gombault and Philippe,[3] Pineles,[4] Bickeles,[5] Obersteiner,[6] and others), they also contain endogenous fibers, that is, fibers arising from the gray matter of the spinal cord.

Thus cases of sacral tabes have an enormous scientific and practical value. Their scientific value lies in the fact that they afford unusual opportunities for studying the probable course of the sacral root fibers within the spinal cord, the nature of some ascending and descending fasciculi etc., a matter of great interest, but which cannot be discussed in this paper. The practical value is due to the fact that some cases of so-called conus lesion may be nothing but tabes. So far our case is the only one on record that strongly suggests such a possibility. The very few cases of sacral tabes, reported up to the present time (Gombault and Philippe,[3] Pineles,[4] Schaffer,[7] Achard and Levi,[8] Leopold[9]), differed from ours by the presence of some classical signs of tabes (Argyll Robertson pupil, loss of knee jerks, etc.) which, as we pointed out, were totally absent in our patient. The trophic disorders on the buttocks and heels we ascribed to the involvement of the conus, but they were the result of tabes, that is, a posterior root lesion. The presence of the knee jerk was due to the intactness of the lumbar portion of the spinal cord, which is the seat of that reflex. In short, the clinical picture as represented by our patient, which was that of a pure conus lesion, could very well be explained by the tabes which he actually had been suffering from for seven years or more. Hence it follows that in some cases of conus lesion when the usual etiologic factors, such as traumas of the vertebral column, hemorrhages of the spinal cord, meningomyelitis, tumors, etc., can be excluded, tabes should be borne in mind as the possible actual disease.

31 North State Street.

---

[2] Marburg, Otto: Die Absteigenden Hinterstrangsbahnen, Jahrb. f. Psychiat. u. Neurol., **22**, 243.

[3] Gombault, A., and Philippe: Contribution a' l'étude des lésions systematisées dans les *cordons* blancs de la moelle épinière, Arch. gén. de méd. expér. et d'anat. pathol., 1894, **6**, 365.

[4] Pineles: Die Veränderungen im Sacral und Lendenmarke bei Tabes Dorsalis, nebst Bemerkungen über das dorso-mediale Sacralbündel, Obersteiner's Arb, 1896, **4**, 341.

[5] Bickeles, G.: *Zum* Ursprung des dorso-medialen Sacralfeldes, Neurol. Centralbl., 1901, p. 531.

[6] Obersteiner, H.: Anleitung *beim* Studium des Baues der nervösen Centralorgane, Wien, 1901.

[7] Schaffer, Karl: Ueber Faserverlauf einzelner Lumbal- und Sacralwurzeln im Hinterstrang, Monatschr. f. Psychiat. u. Neurol., 1899, 5, 220, 95.

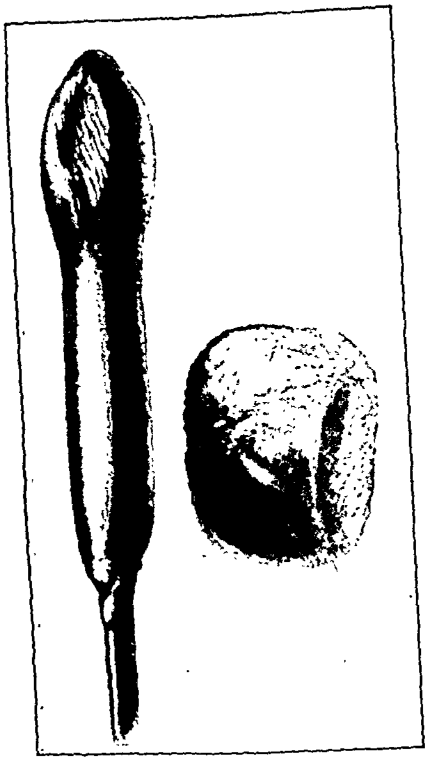
[8] Achard and Levi: Conservation des réflexes patellaires dans le tabes dorsalis, Nouv. Iconog. de la Salpêtrière, 1898, p. 83, Obs. VII.

[9] Leopold, S.: Sacral Tabes: A Case with Necropsy, Jour. Nerv. and Ment. Dis., April, 1909.

THE DIAGNOSIS OF STONES IN THE BILE DUCTS BY MEANS OF THE WAX TIP

GOLDER LEWIS McWHORTER, M.D., Ph.D. in Surgery
Instructor in Surgery, Rush Medical College
CHICAGO

After I had seen an ensacculated obstructing stone of the common duct at necropsy, which had been overlooked in several operations for the relief of severe biliary obstruction, an aid to the diagnosis of bile duct stones occurred to me. This method is the use of the wax-tipped filiform bougie in the bile ducts and is new in this application, though heretofore it has been used in the diagnosis of ureteral stones. In consequence of an impression or scratch mark being made on the soft wax impregnated on the end of a flexible bougie or probe, the presence of a stone and its location in the bile duct may be positively diagnosed.



The tip of a waxed bougie gouged by a stone in the common duct, and the gallstone that caused the scratch marks.

The wax tip was first used in the diagnosis of ureteral stones through a speculum in the female bladder.[1] Since the passing of the tip through the modern cystoscopes exposed the wax to scratches, it was temporarily discarded. Harris[2] states later that it is not improbable that ureteral exploration with the bulbous wax tip is more reliable than roentgenography. He developed a technic by means of which he avoided passing the tip through the instrument, by inserting the wax tip first into the bladder, threading the cystoscope over the filiform bougie, and, after testing the ureter, by withdrawing the instrument, previous to removing the wax tip. In the diagnosis of bile duct stones, it is comparatively simple to overcome this difficulty of contact of the tip with instruments.

Moynihan[3] says that stones in the hepatic duct are liable to be overlooked and that, as a rule, the lower in the duct a calculus is found, the smaller it is. If the common duct is dilated, he advises opening it and inserting a finger in search of stones. In order to prevent the frequent overlooking of stones, writers[4] have emphasized recently the opening of the common duct in many other conditions, as well as in dilatation. However, after internal search of the duct with finger tip and probe, stones are occasionally overlooked.[5] In the case I have mentioned, the common duct had been opened, and the ducts explored two or three times for the cause and location of the obstruction, but the stone that finally caused death was not found.

---

[1] Kelly, H. A.: Diagnosis of Renal Calculus in Women, Med. News, 1895, **67**, 593.

[2] Harris, B.: The Diagnosis of Ureteral Calculus by Means of the Wax-Tipped Whalebone Filiform Bougie Used with the Nitze Cystoscope, Surg., Gynec. and Obst., 1912, **15**, 727.

[3] Moynihan, B. G. A.: Gallstones and their Surgical Treatment, Ed. 2, Philadelphia, W. B. Saunders Company, 1905.

[4] Kehr, H.: Wann soll man nach einer Ektomie bei negative Palpationsbefund von Steinen im choledochus diesen Gang incidiren und drainiren und wann nicht? Arch. f. klin. Chir., 1912, **97**, 301. Eisendrath, D. M.: Overlooked Common Duct *Stones*, The Journal A. M. A., March 31, 1917, p. 968; The Silent Common Duct Stone, Med. and Surg., 1917, **1**, 507; Recurrence after Operations on the Biliary Passages, The Journal A. M. A., Nov. 24, 1917, p. 1752.

[5] Gerster, A. G.: Unsuccessful Surgery in Disorders of the Gall-Ducts *Together with a* Consideration of Naunyn's Cholangiolitis, Surg., Gynec. and Obst., 1912, **15**, 572.

The value of the wax tip for diagnosis of stones in such cases and in all cases of bile duct stones is due to the simplicity of preparation, to the short space of time required for its use, and to the fact that a scratch is the best possible evidence of the presence of a stone.

TECHNIC

After sterilization, from one-half to one part of olive oil is added to one part of dental wax. The end of a No. 3 or larger whalebone filiform bougie or metal probe is dipped into the liquid. On removal of the instrument, the drop clinging to the end will harden quickly; but if it is not of the desired size and contour, the procedure is repeated. Before exploring the ducts, one should examine the tip under a lens to be sure its surface is unscratched. After the tip has been passed through the common duct and the ampulla of Vater, it is removed, dipped in cold water, dried and examined under a lens. The same tip, if its surface smoothness is unchanged, may then be passed up into the hepatic duct and the branches to the right and left lobes of the liver. This duct and its branches, however, should first be explored with a scoop of proper size in order to remove any loose stones, which might otherwise be pushed farther into the lumen.

If at any time while passing the tip, one should observe a decided jump, the chances of obtaining a definite scratch, in the case of a partially ensacculated stone, would be increased by drawing the tip back and forth several times. It is possible to localize the stone more exactly by waxing the filiform bougie in rings at intervals from the tip, or, as Sampson suggests for ureteral stones, by coating the entire catheter with wax.[6] A metal probe may be used in a similar manner for further evidence as to the presence or location of a stone, or patency of the duct, and as an aid to external palpation; for when the wax-tipped metal probe is used, not only may the impression of the stone be left, but if it is passed in sharp contact, the wax may be pressed aside and the hard body felt against the metal. With the metal probe also, the wax may be put on in rings, leaving the tip free for palpating the stone.

122 South Michigan Avenue.

---

[6] Kelly and Burnham: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co., 1914, 1, 270, 2, 126.

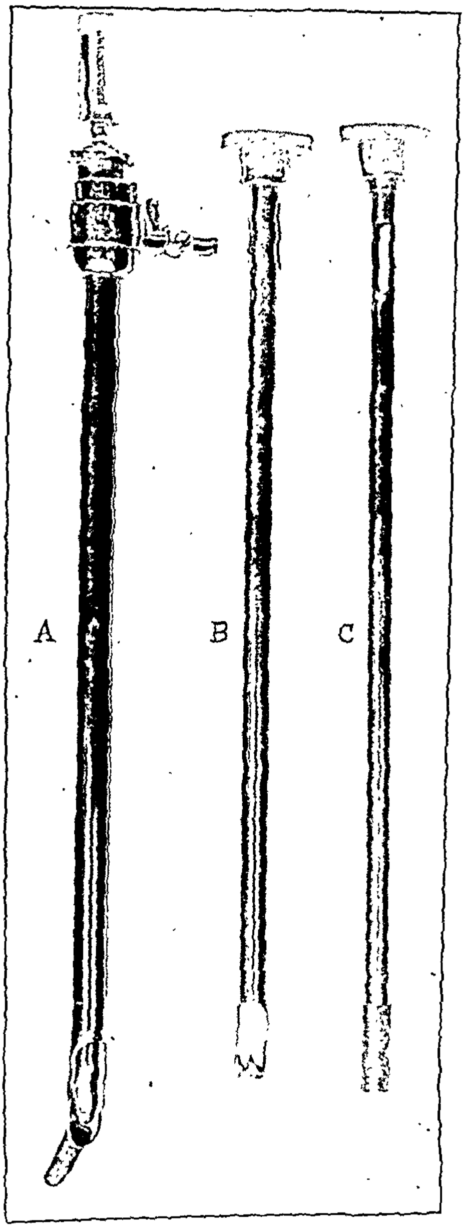
Medical Aims.—The highest aim of scientific medicine today is the eradication of preventable disease, and in the solution of this problem all men who have the interest of the human race at heart can and do write, regardless of medical schools or creeds.—Dr. George M. Kober.

MEDIAN BAR EXCISOR*

W. F. BRAASCH, M.D.
ROCHESTER, MINN.

It is generally recognized that urinary obstruction at the vesical orifice may be caused by various conditions other than prostatic hypertrophy. Such conditions may be divided into three groups, namely, contracture of the bladder neck, glandular and inflammatory tissue formation, and congenital obstructions.

Methods have been devised for removing the obstruction caused by contraction at the vesical orifice, such as the Chetwood and modified Bottini operations, and the Goldschmit technic. However, no method short of resection had been definitely suggested for the removal of obstructing glandular and inflammatory tissue until that described by Young in 1912. He demonstrated that such obstructions could be removed by endoscopic methods under local anesthesia, and without incapacitating the patient for more than a few days. The instrument he used was called a median bar excisor, and while the instrument was indeed a very serviceable one, the operator was handicapped by the fact that it did not permit of accurate inspection of the field of operation. As a result the instrumentation could not be accomplished under the guidance of the eye.



Median bar excisor

It is a well known fact that it is impossible to obtain a satisfactory view of the prostatic urethra without the distention of the urethra, which may be accomplished by either air or water. Air dilation has proved unsatisfactory, so that water is the preferred medium. The median bar excisor I have been using for several years permits of clear inspection of the prostatic urethra with water distention. The instrument consists of three separate sheaths of decreasing caliber which are so arranged that the smaller sheath fits into the next larger. The outside sheath (*A*) is practically a urethroscope. The light is situated at the distal end in the beak, and it has an irrigating cock near the proximal end. The window is of plain glass without magnification and fits all three sheaths. The observer looks through the tube filled with water, after the principle employed in my irrigating cystoscope.[1] After the obstructing tissue is brought into view, the second sheath (*B*) is introduced. This has a collar at its distal end which is armed with two irregular teeth by means of which the tissue is held in place. The latter procedure is also under the guidance of direct vision. Then the inner or knife sheath (*C*) is introduced and the tissue cut while still in view. The blood from the wound is usually washed from the field by the rapidly entering irrigating fluid.

---

* *From the Mayo Clinic.*

[1] Braasch, W. F.: A Neglected Principle in Cystoscopy, Am. Jour. Urol., 1912, 8, 115-119.

The advantages of this instrument are obvious. Without a visualized field, unless the operator is very expert, it is evident that the base of the bladder instead of the median bar might easily be cut.

The use of the median bar excisor should be limited to a small proportion of patients with urinary obstruction. The punch operation should be confined to cases in which the superficial median tissues obstruct the vesical orifice, and to occasional cases of involvement of the bilateral lobes in which enucleation is otherwise inadvisable.

PARTIALLY AUTOLYZED PNEUMOCOCCI IN THE TREATMENT OF LOBAR PNEUMONIA

RESULTS IN TWO HUNDRED CASES *

E. C. ROSENOW, M.D.
ROCHESTER, MINN.

The curative power of antipneumococcus serum in lobar pneumonia due to Type I pneumococcus appears to be established.[1] According to Cole,[2] of every 100 patients with lobar pneumonia admitted to hospitals, the infection in about thirty-five cases is due to Type I pneumococcus, ten dying if untreated. The remaining sixty-five cases are due to the other types of pneumococci, and in these, twenty deaths occur. Hence, about two thirds of the cases of lobar pneumonia, and two thirds of the deaths from the disease, are due to pneumococci, for which there is at present no specific serum treatment.

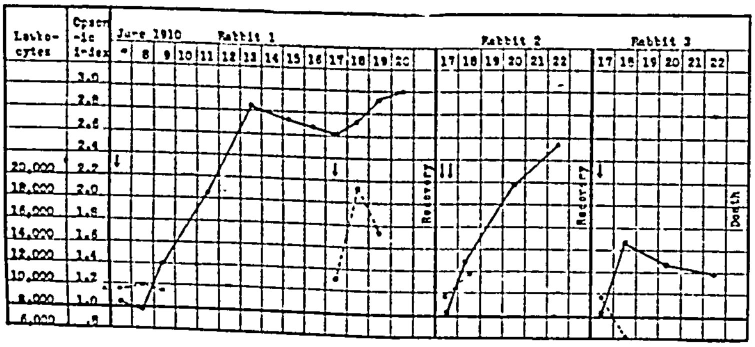


Chart 1.—[illegible] infection in [illegible] tolyzed pneumococci against pneumococcus leukocytes; a [illegible] opsonic index for pneumococci; dotted line,

It has been established that heat-killed virulent pneumococci stimulate the formation of antibodies[3] and tend to protect animals against pneumococcus infections. Active immunization with heat-killed pneumococci[3] and various derivatives of pneumococcus cultures[4] have been used in small series of cases of lobar pneumonia, in some instances with seeming benefit.

There are numerous physicians with a keen perception of lobar pneumonia who feel that active immunization with pneumococcus vaccine, when the vaccine is given early in large doses, is of benefit. The disadvantage of heat-killed pneumococci in which the toxic material has not been removed is considered to be due to the primary negative phase which follows their injection. In connection with studies on the mechanism of pneumococcus infections and the nature of the toxic substance obtainable from pneumococci, attempts were made to separate, in part, the toxic from the antigenic fractions. It was found that the protective power against pneumococcus infections was greater with partially autolyzed pneumococci from which a large part of the toxic substance had disappeared than with heat-killed pneumococci.[5]

On the basis of these experiments, a method of active immunization with partially autolyzed pneumococci was developed, and its apparent value in the treatment of lobar pneumonia has been emphasized from time to time.[6] The mortality rate in 146 cases treated by Hektoen and myself in the Cook County Hospital, Chicago, during three consecutive winters, was 23 per cent., while in untreated alternate control cases it was 38 per cent. This was accomplished notwithstanding the fact that the average time of the first injection was four and one-half days after onset, and that the cases treated were of the most unfavorable type, a majority of the patients being addicted to the excessive use of alcohol. During 1914 and 1915, this pneumococcus antigen was sent on the request of physicians in different parts of the country, and reports of cases were rendered.

The stimulus for reporting our results at the present time is the prevalence of pneumonia among the troops in the concentration camps. I wish also to record a few of the experiments which led to the use of this antigen and to describe the method of its preparation and administration as now practiced.

EXPERIMENTS ON THE IMMUNIZING POWER OF VARIOUS AUTOLYZED FRACTIONS OF PNEUMOCOCCI

In Chart 1 are shown the opsonic and leukocyte curves and the protective action of autolyzed pneumococci against pneumococcus infection in rabbits.

Rabbit 1 was injected subcutaneously with 3 billion autolyzed pneumococci, and ten days later with a culture of a moderately virulent pneumococcus. Rabbit 2 was injected simultaneously with the same sized dose of autolyzed pneumococci and culture, and Rabbit 3 was injected with the culture only. Autolysis had

---

* From the Mayo Foundation.

[1] Cole, R. I.: Report of Studies Concerning Acute Lobar Pneumonia, The Journal A. M. A., Aug. 18, 1917, pp. 505-510.

[2] Cole, R. I.: Specific Treatment of Acute Lobar Pneumonia, Pennsylvania Med. Jour., 1917, **20**, 345-351.

[3] Wolf, H. E.: Observations on Opsonic Index and the Antipneumococcal Power of the Blood in Pneumonia, Jour. Infect. Dis., 1906, **3**, 731-741.

[4] Hirschfelder, J. O.: The Production of Active and Passive Immunity to the Pneumococcus with a Soluble Vaccine, The Journal A. M. A., Oct. 12, 1912, pp. 1373-1374.

[5] Rosenow, E. C.: On the Mechanism of Intoxication in Pneumococcus Anaphylaxis and in Pneumococcus Infections, Tr. XV, Internat. Cong. Hyg. and Demog., 1912, **2**, 338-341; On the Nature of the Toxic Substance from Pneumococci, Jour. Infect. Dis., 1912, **11**, 235-242; Further Studies of the Toxic Substances Obtainable from Pneumococci, Jour. Infect. Dis., 1912, **11**, 94-108. In connection with elective localization studies it has been the rule to inject intravenously a number of animals with increasing doses of streptococcus cultures. The animals receiving the smaller dose, contrary to expectations, frequently died earlier than those injected with a dose two to three times as large. On studying this point more closely it was found to occur chiefly when freshly isolated strains were grown in glucose broth and when many of the organisms were dead, partially autolyzed, and had become gram-negative. In other words, dead, partially autolyzed bacteria injected simultaneously with living cultures called forth reactions which tended to protect against infection.

[6] Rosenow, E. C.: The Autolysis of Pneumococci and the Effect of the Injection of Autolyzed Pneumococci, The Journal A. M. A., June 11, 1910, p. 1943.

been continued for ninety-six hours, and the clear extract had lost most of its toxic properties. Rabbits 1 and 2 recovered coincident with a high opsonic index for pneumococci and a sustained leukocyte curve. Rabbit 3 died coincident with first a slight rise in opsonin, and then a *drop in opsonins and leukocytes.* The results obtained simulated what occurs in nonfatal and fatal cases of lobar pneumonia.[3] By properly balancing the dose of antigen and the living culture, similar results were obtained in a series of experiments on rabbits and guinea-pigs. It was found that if the dose of antigen was *too large or autolysis* was not carried far enough, death might occur earlier in the animals receiving antigen and culture than in those injected with the culture only. Protection was afforded in some instances even after intraperitoneal injection of the cultures.

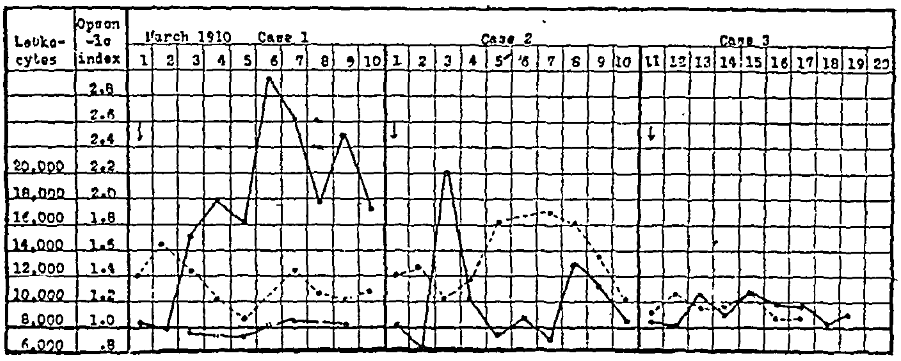


Chart 2.—Opsonic and leukocyte curves in three persons injected subcutaneously with various autolyzed fractions of pneumococci: continuous line, opsonic index for pneumococci; broken line, opsonic index for streptococci; dotted line, leukocytes; arrows, time of injections.

Patient 1 (Chart 2) was injected with 5 billion partially autolyzed pneumococci, Patient 2 was injected with the corresponding clear extract, and Patient 3 with the extract after it had been treated with leukocytes. In the first case there were early rise in and a sustained opsonic index for pneumococci, no change in the opsonic index for hemolytic streptococci, little change in the number of leukocytes, no fever, and only slight local reaction. In the second case there were primary drop and then a transient rise in opsonic index for pneumococci, a slight increase in the number of leukocytes, a rise in temperature, and a moderate local reaction. In the third case there were no changes in opsonic index, leukocyte count or temperature, and no local reaction.

From these and other similar experiments it was concluded that partially autolyzed pneumococci had greater and more sustained antigenic powers than the more toxic extract, and that leukocytes had the power to destroy completely *the antigenic power* of the extract. The experiments on animals showed that the doses of antigen and culture needed to be balanced quite accurately in order to protect against the infection.

In Chart 3 are given the opsonic index and temperature curves of three persons injected with, respectively, 20, 40 and 60 billion autolyzed pneumococci. According to this experiment, the first dose (20 billion) was regarded as the most favorable, and this was the dose used in the treatment of patients during the *winter of* 1911.

METHOD OF PREPARATION AND ADMINISTRATION OF THE ANTIGEN

Injections of the extract of pneumococci when highly *toxic* are followed by marked local reaction, leukocytosis, some fever and a *primary diminution* in opsonins followed by a rise.[7] After autolysis has been carried to the point at which most of the toxicity of the extract has disappeared, the local reaction is slight, and antibodies increase more rapidly. The *increase in antibodies following injection of the extract is not* sustained or as marked as after injection of the *partially autolyzed pneumococci* (Chart 2). The injection of the former in a small series of cases of pneumonia proved harmless and, at times, beneficial.[8] Hence, both extract and autolyzed pneumococci are now used.

The antigen is prepared by growing virulent strains of pneumococci of the different types in tall columns of glucose broth for from eighteen to twenty-four hours, centrifugalizing, and suspending the sediment in salt solution, so that 1 c.c. contains the growth *from approximately* 15 c.c. of the culture, that is, about 15 billion pneumococci per cubic centimeter. The suspension of the sediment of the different strains is mixed and then placed in bottles so that the column of liquid is approximately 12 cm. tall. To this a layer 0.5 cm. of ether is added. The bottles are stoppered with sterile corks secured *in place by strips of adhesive plaster*, thoroughly shaken, and placed at 37 C. The suspension is thoroughly shaken at least twice a day as autolysis proceeds. Immediately after the addition of the ether and daily thereafter, a small quantity of the suspension is removed and the ether displaced by passing a current of air through the mixture. Films are stained by the *Gram method*, cultures are made, and intravenous injections are given to guinea-pigs. Autolysis is carried to the point at which *approximately* 95 *per cent*. of the organisms have become gram negative and to the point at which 5 c.c. of the suspension produce few or no symptoms in guinea-pigs weighing from 250 to 300 gm. If all the strains are *highly virulent*, the toxicity of the suspensions usually disappears in from three to five days. When this point has been reached the autolysis is interrupted, the ether removed, and 0.25 per cent. cresol or phenol (carbolic acid) added. The antigen is then stored in the ice-chest. It is not used in the treatment of pneumonia until the guinea-pigs injected with the nontoxic suspension

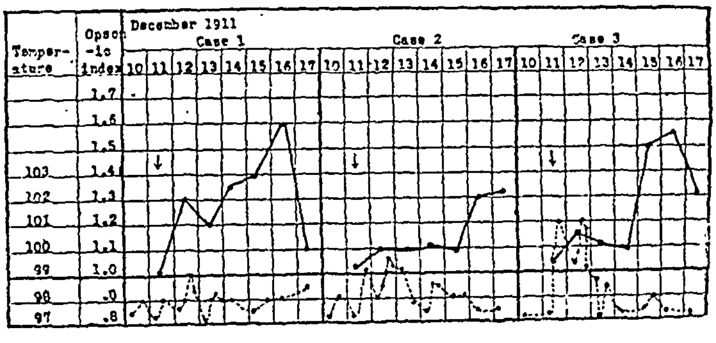


Chart 3.—Opsonic and temperature curves of three persons injected subcutaneously with various doses of autolyzed pneumococci: continuous line, opsonic index for pneumococci; dotted line, temperature; arrows, time of injections.

---

7. Rosenow, E. C., and Hektoen, L.: Treatment of Pneumonia with Partially Autolyzed Pneumococci, The Journal A. M. A., Dec. 13, 1913, pp. 2203-2204.

8. Rosenow, S. C., and Falls, F. H.: Treatment of Lobar Pneumonia with Autolyzed Extracts of Pneumococci, The Journal A. M. A., Dec. 23, 1916, pp. 1929-1930.

have remained well and the cultures sterile for at least ten days. The dose for adults of this antigen should be 1 c.c., for children, from 0.25 c.c. upward, depending on the age; daily until the temperature becomes normal and remains so for one or two days, or until it is apparent that it has no effect.

THE TREATMENT

The antigen used in the treatment of the 200 cases under consideration consisted of a suspension of approximately 20 billion partially autolyzed pneumococci per cubic centimeter of physiologic sodium chlorid solution. The dose for adults was 1 c.c. daily until the temperature became normal. In children the dose ranged from 0.25 c.c. upward, depending on the age.

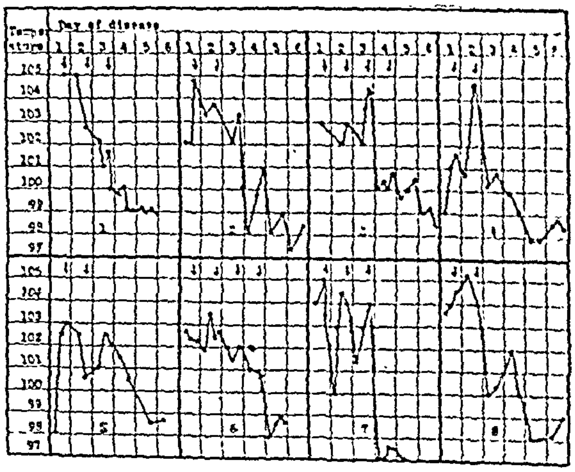


Chart 4.—Temperature curves in eight cases when injections of antigen were begun on the first day of the disease.

The diagnosis was made from the clinical history, character of sputum, physical findings, leukocyte count, etc. Cultures from the sputum were made in many instances, and in a number the type of pneumococcus was determined.

TABLE 1.—RESULTS OF THE TREATMENT OF LOBAR PNEUMONIA WITH PARTIALLY AUTOLYZED PNEUMOCOCCI

Time of First Injection	Number of Cases	Apparent Effect of Antigen			Average Age of Patient
		Strikingly Good	Good	Indifferent	
1 In patients who recovered:					
First day	23	18	3	2	32
Second day	66	25	34	7	31
Third day or later	83	16	28	39	28
Not recorded	14	4	8	2	41
Total	186	63	73	50	33
2. In patients who died:					
Second day	3	1	1	1	58
Third day or later	11	0	0	11	44
Total	14	1	1	12	51

In Table 1 are given the results in the 186 patients that recovered, and the 14 that died. The results in the 23 patients that received the first injection of antigen on the day of onset were strikingly good in 18, good in 3, and indifferent in 2. The results in the 66 patients receiving the first injection on the second day of onset were strikingly good in 25, good in 34, and indifferent in 7. The results in the 83 patients receiving the first injection on the third day of onset or later were strikingly good in 16, good in 28, and indifferent in 39. The results in the 14 patients in which cases the exact time of the first injection was not recorded were strikingly good in 4, good in 8 and indifferent in 2. Thus in the 186 cases, irrespective of the time of injection, the apparent results were strikingly good in 63, good in 73, and indifferent in 50. Of the 3 fatal cases in which the patients received the first injection on the second day, the apparent results were strikingly good in 1, good in 1, and indifferent in 1, while in the 11 patients who died and who received the first injection on the third day or later, the apparent results were indifferent in all.

The average mortality rate in the 95 patients receiving the injection within forty-eight hours after the onset was 3 per cent., while in the 105 receiving the first injection on the third day or later after the onset, it was 11 per cent. The total average mortality rate in all cases treated was 7 per cent.

One fatal case showed hemolytic streptococci in the blood and pleural exudate. One was proved to be due to *Bacillus mucosus* and one to *Pneumococcus mucosus*.

This apparently greater benefit following early injection is not due to difference in age, for the average age of the patients in the three groups is 32, 31 and 28 years, respectively. The average age of all the patients who recovered is 33 years, while of those who died, it is 51 years.

In Table 2 is given the time of crisis or lysis in 109 cases in which this could be determined. In the 24 cases in which the first injection was made on the day of onset the average duration of fever was three and one-half days, and in the 32 cases in which the first injection was given on the second day, the average duration of fever was five days. In the 53 cases in which the first injection was made on the third day or later the average duration of fever was seven days; the total average in the 109 cases was five and two-tenths days.

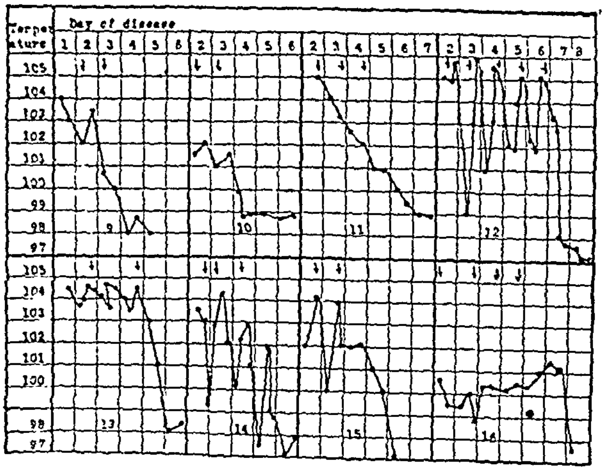


Chart 5.—Temperature curves in eight cases when injections of antigen were begun on the second day of the disease.

In Charts 4, 5 and 6 are shown representative temperature curves of twenty-two patients in whose cases the treatment was begun, respectively, on the first, second and third day or later, of the disease. The arrows indicate the time of injection of antigen. The age in these patients ranged from 4½ years to 58 years, the average age being 23 years. The distribution by lobes was the usual one. In Case 4 the entire left lung of the patient was consolidated. The need for giving the antigen early in the disease in order to obtain evident beneficial effects is well shown in these charts. In Case 16, in which little or no evident effect followed early injection, the patient was a bad alcoholic and had delirium tremens. In many of the patients the onset was violent and the toxemia great. The pulse and respiration rates showed a corresponding drop with the temperature, and hence the curves are omitted.

TABLE 2.—DURATION OF LOBAR PNEUMONIA IN PATIENTS TREATED WITH PARTIALLY AUTOLYZED PNEUMOCOCCI

Time of First Injection	Number of Cases	Day of Crisis								Average Duration in Days
		2	3	4	5	6	7	8	9 or Later	
First day........	24	5	9	4	5	1	....	....	....	3.5
Second day.......	32	....	7	7	8	2	4	1	3	5
Third day or later...........	53	....	....	4	9	7	15	5	13	7
Total........	109	5	16	15	22	10	19	6	16	5.2

In only a relatively few cases was there decided local reaction at the point of injection; in no instances was the injection followed by chill, and no harmful effects have been reported. In some instances there was a short temporary rise in the temperature, followed, especially in the early cases, by a marked drop within twelve hours (Case 9, Chart 5). In some instances, following early injection of antigen, the fall in temperature was abrupt (Cases 1, 2 and 7, Chart 4, and Cases 10, 13 and 15, Chart 5). In others it was more gradual (Cases 5, 6 and 8, Chart 4, and Cases 11, 12, 14 and 15, Chart 5). The drop in the temperature was often more marked following the second early injection after a twenty-four-hour interval than after the first injection (Case 4, Chart 4, and Case 9, Chart 5). When injections were given late (Chart 6) the effect was less noticeable, although in some instances the temperature began to decline soon after the injections were begun.

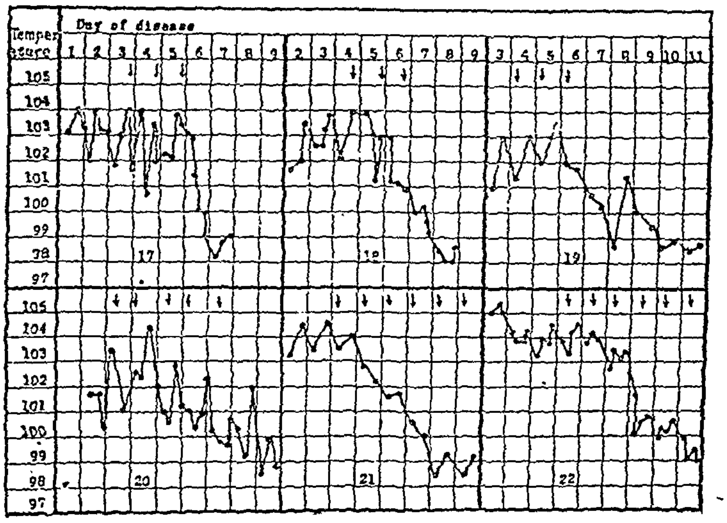


Chart 6.—Temperature curves in six cases when injections of antigen were begun on the third day of the disease or later.

The crisis following early injection of the antigen did not differ materially from that which occurs during the natural course of the disease. There was usually an accompanying perspiration, a drop in pulse and respiration rates and in the leukocyte count, and often a most striking disappearance of the toxemia. Resolution of the lung usually occurred quite promptly after the temperature became normal. Extension to another lobe occurred twice in cases in which the antigen was given within forty-eight hours of onset. Empyema developed in only four cases. In three cases of rapidly recurring pneumonia, early injections seemed to cut short the attack and, when injections were continued for a time, to prevent recurrence. Apparently good results followed its use in a number of postoperative pneumonias.

The occurrence of early crisis or lysis has been observed in pneumonias due to all of the types of pneumococci, and in at least two cases due to *Pneumococcus mucosus*.

The opinions of some fifty physicians who have cooperated with me are of interest. All but two who used the antigen early in the disease have noted apparently beneficial effects. Those who used the antigen late in the disease have noted little or no evident action. Those who have treated the largest number of cases with the antigen seem most convinced of its efficacy. Dr. F. Arnold Clarkson of Toronto has treated thirteen cases, the patients ranging in age from 19 to 67 years, without a death during a period when the mortality rate in the remaining cases of pneumonia in the hospital was 50 per cent., and says: "Most of the patients said they felt better for some time after the injection. All recovered, although some of them were very severe on admission to the hospital."

Dr. Ola Putnam of Marcelline, Mo., has reported sixteen cases of pneumonia treated with the antigen, the patients ranging in age from 6 to 63 years, without a death. He says: "When the antigen was used in the first forty-eight hours, the effects were so marked that it does not seem possible to attribute them to coincidence." The results in his hands following the early injection of antigen were so similar to those I have observed for some years that I quote reports of two of his cases:

J. J. D., aged 39, farmer, weight 200 pounds, married; previous illness consisted of two attacks of renal colic, a few months apart, two years before present illness. Initial chill about 2 a. m., February 14. At 11 a. m., temperature was 103.6, pulse 130, respiration 36, some cyanosis and complaint of pain in left side near nipple. Was expectorating blood-stained sputum; crepitant râles plainly heard over lower lobe of left lung. One c.c. antigen was given hypodermically. The following day about noon temperature was 100, pulse 110, respiration 26, expectoration about the same in quantity and character. One c.c. of antigen was again given and patient had profuse sweat about 9 a. m. The temperature next morning was normal, pulse 76, respiration 24. There was no further rise of temperature, and recovery was uninterrupted.

The case of R. U., 42 years. One c.c. antigen was given three hours after the initial chill. His temperature was 102.4, pulse 108, respiration 34. There was pleurisy over the lower right lobe, where many crepitant râles could be heard. That night there was some sweating, and twenty-four hours after the first dose of antigen the temperature was normal.

Dr. F. W. Nickel, Eureka, Ill., treated nine cases, the patients ranging in age from 2 to 58 years. All but three received the first injection on the first day of the disease, with recovery in all. He says: "These cases in which antigen was used, compared to eleven cases in which it was not used, were milder, average temperature and pulse rate were lower, they were more comfortable, the duration was shorter, they took nourishment better, and in every way appeared to get along better than the patients treated without antigen during the same period of time—three months (January, February and March, 1914)."

Dr. J. P. McKelvey of Pittsburgh reports three cases, in all of which the antigen was administered late. He writes: "Our results in three cases were rather indifferent, as we were unable to note any definite effect on pulse, temperature, crisis or general state of the patient."

The exact mode of action of the antigen, whether due to nonspecific effects, to desensitization or to the mobilization of antibodies, has not been definitely determined. Considering the experimental and clinical evidence, however, the conclusion seems justified that this antigen, if given early, is followed in lobar pneumonia by the rapid appearance in the blood of demonstrable antibodies and seems to have a definite beneficial action on the disease. Its harmlessness is established. However, owing to the great variations in the course of the disease, depending, among other factors, on the virulence or type of the infecting pneumococcus, it is most difficult to draw conclusions as to the therapeutic value of any agent in pneumonia.

The results presented call for further study and trial. It is hoped that this will be carried out in military hospitals where opportunity to test its efficacy on a large scale under properly controlled conditions is at hand. The serum treatment for Type I infections should, of course, take precedence; but if this serum is not available, the antigen, since polyvalent, should be injected in all cases of pneumonia as soon as the diagnosis can be made. The determination of types of pneumococci, while important, should not prevent its early administration. A large quantity of antigen has been prepared, its effects on animals and on patients tested, and it will be sent on request to physicians in private practice or military hospitals who wish to study its action and who have not the facilities or the necessary time to prepare the antigen.

THE CIVIL ADMINISTRATIVE CODE OF ILLINOIS, AND MEDICAL LICENSURE *

FRANCIS W. SHEPARDSON
Director, Illinois Department of Registration and Education
SPRINGFIELD, ILL.

About ten years ago, the attorney-general of Illinois, William H. Stead, who is now director of trade and commerce at Springfield, in a moment of discontent with existing conditions, gave utterance to an opinion that an effective government in the state could never be obtained until the overlappings of authority resulting from the distribution of the powers of administration among many boards and commissions were ended. This observation was, perhaps, the first definite expression which led to the adoption of what is now known as the civil administrative code.

It was not until the forty-eighth general assembly, however, that an efficiency and economy commission was appointed. It consisted of four senators and four representatives who were authorized to make an investigation of all departments of the state government, including all boards, bureaus and commissions which had been created by the general assembly, with a view of providing a more perfect system of accounting and of combining and centralizing duties. It was hoped that this study would lead to the rejection of much useless machinery and to reorganization of the state government, with a view to greater efficiency and economy in administration.

The committee was comprised of some of the ablest members of the two houses. After organizing and outlining its work, in August, 1913, the members of the committee employed as director Dr. John A. Fairlie of the political science department of the University of Illinois. Under his leadership, they took the advice of a large number of officials and citizens, after many hearings at which testimony was presented from almost every possible point of view. As a result of the committee's investigations, there was published a report of 1,050 pages which has been called one of the most remarkable documents in the history of state government in this country.

ADOPTION OF THE CODE

It was in the year 1917 that the new plan took final shape. Although Governors Deneen and Dunne both referred to the proposition in their messages, it was not until the gubernatorial campaign of 1916 that it became a theme of general discussion throughout the commonwealth. In his inaugural address, Governor Lowden took a strong position in favor of the reform. Early in the year 1917, what is known as the civil administrative code was presented to the legislature and became law.

Its salient feature is the centralization of the several government agencies, with the exception of the civil service commission and certain temporary boards, into the nine departments of finance, agriculture, labor, mines and minerals, public works and buildings, public welfare, public health, trade and commerce, and of registration and education.

For each of these departments an executive officer, or director, is provided, with such subordinate officials as are deemed necessary, the number varying in the different departments.

THE CODE ON TRIAL

Seven months of experience have apparently amply justified the hopes of those who had at heart the administrative reform. While, according to the long established custom of state governments, a new administration always has to meet deficiencies from a previous one and usually has the fate of being forced to raise a tax rate which was reduced by its predecessor for campaign purposes, the machinery of the code has worked far more smoothly than even its most sanguine supporters had hoped. Those associated in the administration confidently believe that, if given a chance for a fair trial, within a year the code will prove its value by substantial financial savings as well as by increased efficiency. The work of the department of finance particularly is expected to show gratifying results. The strictest scrutiny is being given by its officers to all outlays, and many kinds of waste heretofore ignored, are now being checked.

The centralization of government under the code is not complete because, outside its jurisdiction, there are certain so-called constitutional offices, such as those of the secretary of state, the auditor of public accounts, the state treasurer and the superintendent of public instruction. This condition must remain until, perhaps, as the outcome of a constitutional convention, their duties may be included in similar proper depart-

---

* Read before the Annual Congress on Medical Education and Licensure, Chicago, Feb. 4, 1918.

ments. Happily there has been perfect harmony between the code officers and the constitutional ones, with the entire machinery at Springfield, to all appearances, working smoothly in the direction of notable administrative achievement.

WORK OF THE DEPARTMENT

In the reorganization scheme, medical licensure, formerly a part of the duties of the state board of health, was placed in the department of registration and education. Just a word about this department may be of interest. While the double name seems to imply divided activity, a closer survey of the powers and duties of the department shows that the thought of education is a dominant one. The word "registration" relates to the administrative work associated with all those professions and trades of whose members the state requires a license. The department has jurisdiction over a dozen different lines of endeavor, including those of the architects, barbers, chiropodists, dentists, embalmers, horseshoers, midwives, nurses, pharmacists, physicians, plumbers, structural engineers and veterinarians. It has a staff of twenty-seven persons whose work is being so organized as to distribute responsibility most effectively and secure accuracy, promptness, and efficiency in control.

The oversight of this part of the activities of the department is placed in the hands of a superintendent of registration. He is charged with arranging for the necessary examinations as provided for in the statutes, with furnishing of adequate assistance to the examiners, with the notification of the successful candidates, with the keeping of the records and files of certification, and with the large amount of correspondence relating to licensure in the several lines. Inasmuch as all the laws which regulate licensure provide for the evaluation of credentials both of preliminary education and professional training, the division of registration is charged with the investigation of the qualifications of applicants for examination and so, naturally, with the establishment of standards and the task of approving both the schools themselves and their courses of instruction. If the authority of the laws should be invoked to its full degree, it would be seen that the department's power over schools of all kinds is very great.

SUPERVISION OF EDUCATIONAL INSTITUTIONS

The word "education" in the department's title, therefore, does not imply an entire change of thought. It may, however, be taken to refer to certain types of higher education which are carried on under state auspices, and which are professional, investigational or scientific in their nature. The five normal schools which heretofore have been controlled by separate boards of trustees, are now placed under the jurisdiction of the department, having a single board with the director of registration and education as chairman. Grouped under the department also are the four scientific surveys, located at Urbana in connection with the state university, namely, the state geologic survey, the state water survey, the state natural history survey and the state entomologic survey. For the study of the needs of the four surveys and the development of their work, a special advisory board of scientists, called "the board of natural resources and conservation" and representing the different fields of research touched by the surveys, has been provided, the director of the department being its chairman. The department has jurisdiction also over the state museum, located at Springfield. For advice regarding the management of the museum, there is a board composed of specialists representing the five different lines of activity with which the museum concerns itself, namely, botany, ethnology, zoology, manufacture, and museum administration.

The members of these advisory boards were chosen with no consideration in mind whatever except to secure individuals of the highest character, entirely regardless of political affiliation, whose names would carry weight wherever mentioned. The board of natural resources and conservation, for example, is composed of Profs. Thomas C. Chamberlin and John M. Coulter of the University of Chicago, both men of national reputation in their respective fields of geology and botany; Profs. William Trelease and William A. Noyes of the University of Illinois, equally conspicuous in botany and chemistry respectively, and Mr. John W. Alvord of Chicago, an engineer of wide reputation. On the board of museum advisors are Edward W. Payne, one of the best known and most highly honored citizens of Springfield; Messrs. Owen and Millspaugh of the Field Columbian Museum; Prof. Henry B. Ward of the University of Illinois, and Mr. N. H. Carpenter of the Art Institute of Chicago. The normal school board, in like manner, is made up of selected men of exceptional fitness for their task. The department, in its administration, is greatly strengthened by its ability to command the assistance and advice of men of such preeminence. The magnitude of the educational work of the department, if expressed in terms of annual appropriations, is such as to make it fairly comparable with similar special departments in a great American university.

SAFEGUARDS FOR MEDICAL LICENSURE

But too much time may have been given to this preliminary statement, as the special interest of physicians lies in the field of medicine and in an understanding of the relationship which the department bears to the machinery of medical licensure. As before indicated, the dominating idea of the civil administrative code is combination and coordination, with centralization of power under responsible individuals. If such a plan provided for a political organization and the choosing of officers purely for partisan reasons, with special fitness for a given task made entirely subsidiary, there might reasonably be fear for the results. There is ground for thinking, however, that the scope of the activities of each of the nine departments is such as to command the services of individuals of the highest type with earnest purpose in accomplishment.

As a sort of safeguard against personal inefficiency, arbitrariness or venality on the part of the executive head, the code provides that whenever the laws regulating a given profession or trade so require, the department shall be advised and aided by a committee composed of members of that profession or trade designated by the director from time to time. The advantage of the limitation of the words "from time to time" has already been shown by several cases in which trial revealed the fact that chosen individuals were not satisfactory. The objection made to the plan is that there may be lack of continuity in policy when there is uncertainty of tenure. This is obviated by the possibility of reappointment of those whose worth has been demonstrated. The danger in the personal appointment feature, of course, is the danger attending the entire code plan. An individual honored with appointment as director of a department either will or will not rise to his responsibilities. Still another safeguard declares that, in selecting the members of such committee, the head of the department shall give due consideration to the recommendations of members of the respective professions, trades and occupations and of the organizations therein. This committee has charge of the examinations for licensure and so guards the approach to the profession. In accordance with the code, the committee for medical practitioners is composed of five members. Exceptional care was taken in the selection of the initial committee under the new plan. The department officials cherished the idea of having a certain degree of continuity between the proceedings of the new department and those of the old state board of health. They wished to have the different points of view of medical organizations represented. Above all, they had an ambition to secure a group of men whose names would command respect and who in themselves would be an assurance to the friends of medicine that, under no circumstances, could there be retrogression under the changed conditions of the code. After a sifting of a large number of names presented for consideration, those chosen were Dr. John A. Robison of Chicago, former president of the Illinois State Board of Health; Dr. W. L. Noble of Chicago, former president of the Illinois State Medical Society; Dr. Leon C. Taylor of Springfield, for many years a member of the legislative committee of the Illinois State Medical Society; Dr. Carl E. Black of Jacksonville, all of whom represent the regular school, and Dr. G. M. Cushing of Chicago, the secretary of the Illinois Homeopathic Association, who represents homeopathy.

DEPARTMENTAL POWERS UNDER MEDICAL PRACTICE ACT

There was an added degree of importance in the choice of the first committee because of the fact that a new medical practice act, marked by many advances, went into operation the same day the department began its work. The new practice act raises the minimum requirements of preliminary and professional instruction and empowers the department of registration and education to establish additional standards. It gives the department power to revoke licenses for any one of nine reasons. It practically bars from the state most of the limited medical practitioners and places notable restrictions on the others. It affords abundant opportunity for toning up the whole medical profession in Illinois, in case the department can have the support of the better element of citizenship for its aggressive acts. No stronger appeal could have been made to the ambition of any one than that which was made to the director of registration and education, July 1. Under the law, neither he, nor his assistant director, nor the superintendent of registration could be a member of any one of the professions or trades for which the state requires a license. They were obliged to approach the problems of administration under many limitations of ignorance. But this handicap was more than overcome by the earnestness of their purpose to carry out the spirit of the several laws so as to win the approbation of those particularly interested in them, and better yet, to find that self-approbation which, after all, is the supreme thing when sincerity rules the heart.

In 1910, a now famous survey of American medical schools began its description of conditions in Illinois with the sentence, "Illinois is the plague spot of medical education in the country." In the eight years which have elapsed since those words were written, astonishing changes have come, and it is the determination of the department of registration and education, so far as lies within its power, to go forward in the direction of greater improvements in the situation. I wish to present one or two observations and impressions regarding medical licensure which have come to me in these recent months of administration.

DISTRUST IN THE MEDICAL PROFESSION

Approaching the subject of medical licensure, as I did from the standpoint of a layman, I found several things that made a marked impression on me. Of course I have been familiar, as every one has, with the jealousies which attach to the medical profession, suggested by the familiar proverb, "When doctors disagree, who shall decide?" I was hardly prepared, however, to find that this feeling of distrust and suspicion of one another was reflected in regulations covering licensure to practice medicine. While the laws and regulations relating to other professions seem to imply that an individual is innocent until he is proved guilty, that there are honorable men who may be trusted, and that there are honorable institutions whose diplomas are entitled to respect, in the case of the medical practice acts and the regulations of examining boards of medicine, the dominant note seems to be one of distrust, extending to medical schools, colleges, preparatory schools, and to every person who seeks to pursue the honorable profession of medicine.

The universities and colleges of the country, and other organizations which study schools and school standards, have learned to recognize certain institutions as worthy of trust. Why should not the medical profession also adopt this policy? Let us take the oldest collegiate institution in our country as an example. Harvard University has certain specific requirements for admission to its freshman class; it has certain specific credits which are required for graduation with the bachelor's degree, these being the completion of a definite number of courses with perhaps some regulations regarding required work. On the completion of the work thus demanded, the institution grants its diploma. In like manner, it has requirements for admission to its medical school and requirements for the conferring of the degree of medicine. Why may not the honor of Harvard University be recognized and its bachelor's degree and its doctor of medicine degree be accredited at once at their full value by a medical examining board or committee without any regulations demanding the production of original credentials of preparatory work, either preacademic or preprofessional?

CLEARING AWAY SUSPICION

There is an organization known as the Association of American Universities. Admission to its membership is carefully guarded; but when that admission is once gained, each member of the association recognizes the credits of the other without question and without examination. There are other organizations of universities and colleges that have won the right of recognition because of the strictness of their conformity to regulations designed to elevate the tone of college life and the standards of collegiate instruction. Why should not medical examining bodies avail themselves of the thorough investigation which these organizations have made and accept for their own guidance the decisions of the latter as to what institutions are entitled to confidence, without any requirement of personal examination of any school?

There may be a reason why the profession of the physician is specially sacred—a reason which does not apply to the dentist, the pharmacist, or the member of any other trade or profession, and which demands a distrust of every human being lest, perchance, some one unworthy be granted a license to practice. In carrying on the work of the department of registration and education, I hope I may be able to follow the same methods of recognition of accepted standards to which I have become accustomed in a quarter of a century of university life, without giving rise to any suspicion that under my leadership the department is lowering standards in the slightest. At a recent conference attended by representatives of the five recognized medical schools of Illinois, the members of the examining committee for medicine and the officials of the department, it was the unanimous sentiment that, in connection with the formulation of new standards for approved schools, the atmosphere of suspicion so long persistent in Illinois should be cleared away. This conference, at which an entire working day was spent in harmonious effort to determine just and equitable rules for the regulation of medical schools and for the protection of Illinois medical licensure, was in itself evidence of the spirit which animates the department of registration and education.

NEED OF ANNUAL LICENSE RENEWAL

Another observation I wish to make is one of surprise at finding no provision in the Illinois medical practice act for an annual renewal fee for medical licentiates. In other professions and occupations, a fee of this type is much approved. Once a year, at least, the registered pharmacist, the architect or the barber reports his whereabouts and pays his renewal fee. The physician receives his license and is turned loose. If he joins a local or regional or state medical society, his habitat and habits may be known. But if he becomes a quack or faker or a caterer to degenerates, no one follows him up, except as he is arrested by some defrauded patron or falls into the clutches of the law for abortion or for selling narcotics. An annual renewal fee would mean a closer supervision. It would afford opportunity for withholding a license, if charges of unworthiness were proved. Incidentally, although this is a minor consideration, the revenue thus obtained would enable the state to be more aggressive in its attitude toward those who persistently violate the law and continually disgrace the great profession of medicine. As I have watched the workings of the laws regulating other occupations and have noted the great advantages of the annual license renewal features, I have wondered much why the friends of medicine in Illinois did not long ago make this a feature of the medical practice acts.

Instinctive Reactions.—Under normal environmental conditions instinctive reactions are quite sufficient and effective, but given an unusual demand for action under unusual stimuli, the individual fails to meet the situation and is more or less helpless. This is because intelligent action has to be substituted for instinctive reaction.—F. P. Norbury, *Institution Quarterly*.

THE MILITARY, INDUSTRIAL AND PUBLIC HEALTH FEATURES OF NARCOTIC ADDICTION

CHARLES F. STOKES, A.M., M.D., D.Sc., LL.D.
NEW YORK

It behooves us at this time carefully to consider, from every angle, all possible sources of man-power in order that we may claim for service many who believe themselves incapacitated for work, and force to purposeful effort others, who have sought exemption by reason of acquired or assumed physical deficiencies.

Distributed over the country are hordes of drug users in the age of conscription who, if drafted, must either claim exemption by reason of addiction, or, if accepted, must later be discharged as undesirable, or unable to serve, unless steps are taken to conserve this loss.

In some sections of the country heroin claims 90 per cent. of the narcotic victims. Nearly all of these persons are in the period of adolescence. It is difficult to say just how many addicts there are in the United States. The number may be surmised, however, when we consider the figures of a federal official who recently reported at a public hearing in New York City that there are a million drug users in New York State alone. At the other end of the line, we have the estimate of M. I. Wilbert of the United States Public Health Service that there were 175,000 addicts in the United States four or five years ago. It is understood that the latter figures were based largely on estimates of the importation and sale of opium through trade channels, and that the appalling spread of heroin addiction and smuggling did not figure in the count.

We have made a careful study of this type of individual and find, for example, that the heroin users represent the norm for their respective grades in society: the percentage of feebleminded among them is around 6; few have been convicted of felonies; many have been arrested for minor offenses; after appropriate treatment nearly all have promptly regained their physical balance and later mental stability. It is known that drugs that depress function bring about no permanent structural tissue change demonstrable by laboratory methods. If this is true, then we have before us a monster group, a large proportion of which is capable of complete mental and physical rehabilitation, provided effective measures are employed. Within reach we have man-power of enormous proportions either for enlistment in the military forces or enrolment in the war industries. It would be illogical to look for 100 per cent. efficiency at the outset from individuals in this group, should they be enrolled in the military services or in the war industries, for addiction runs counter to close and continued application to any task and tends to rob the individual of the love of work for work's sake, and he is denied the joy of service for reasons that will be set forth presently. He is rarely an adept in the manual trades.

Let us see if we cannot come to a better understanding of the narcotic addict, and his attitude toward society, so that we may learn to know him as he is, and not as he is generally supposed to be. For purposes of study and intelligent application of remedial measures, we must recognize distinct types among addicts, such as the intemperate and impulsive adolescent heroin user, who is usually profoundly poisoned and at low nutritional ebb; the pipe smoker, calm and serene, showing little apparent nutritional change; the psychopath, who was a psychopath before he became an addict; the unfortunate accidental type, who has fallen into addiction through the pain of injury or disease, sometimes the physician's victim; the temperate and discreet morphinists, among whom we frequently see the pale, fat, flabby type, suggestive of athyroidism. In each case, temperament has a perceptible influence on the course of the addiction. In all cases, no matter what their origin, or what form of opium they may be using, we find among addicts certain features in common that to my mind explain society's attitude toward the addict, and the addict's behavior toward the community. Further, these characteristics have a direct bearing on military, industrial, economic, social, criminal and public health problems.

No matter whether or not the addiction is a crowd, or gang, contamination, at the beginning, as is commonly the case with pipe smokers and heroin users, sooner or later the condition develops individualistic features; the indulgence becomes secret and solitary, and what might well be called a "shut-in" personality impresses itself on the unfortunate's character. Each day there arises from within an imperative demand for the agent that will save him from discomfort and permit him to avoid the appearance of emotional stress; this he must secure at all hazards, clandestinely, of course, for the law says he must not have it. His day's work is constantly overshadowed by thoughts of the time for the administration of his drug. In this frame of mind the addict must lack, under most promising conditions, ability to think clearly and to give full attention to the problems from without. If he misses his usual medication, he develops abstinence symptoms which dominate his behavior until he gets relief. This familiar picture, if carefully studied, convinces one that the addict is quite unable to adjust himself to the demands and restrictions of military service, in which men must accept standardized equipment, housing, food and the like quite remote from the "facilities" on which the variant must depend in community life. Hence the necessity for the painstaking mental and physical examinations at recruiting stations.

Not only is the addict unable to measure up to the requirements of military service but he is usually unable to meet the full exactions of community life. He is often in conflict with law, is commonly a drag in the industrial world; yet he may accomplish a measure of security in fields in which emotional flights have a value. He rarely figures as a financial asset; he is often an economic burden and very commonly a public health menace.

If the foregoing is accepted, then it is plain that we have enormous values in man-power going to waste. Individuals in this unfortunate condition may desire to serve, but realize that they are unable properly to prepare themselves for service by their own efforts, and they have little or no knowledge of agencies to which they can apply for relief.

Here is a military problem, an industrial condition, and a public health menace worthy of immediate attention on the part of federal and state authorities. Unattached physicians could, in my opinion, render conspicuous patriotic service by entering this field, provided a plan for action is laid before them and they are qualified by training to grasp the technical features of effective measures.

What plan of organized effort will best meet this situation? In order to determine this it will be well to keep clearly before us some features of the pathology of addiction so that our methods shall not be haphazard, ineffective and incapable of a measure of uniformity. In the prolonged use of opium and its narcotic derivatives, it is generally conceded that we are dealing with chronic depression of nervous functions; and, further, this depression involves the ductless glands and other organs that have to do with metabolism. In consequence, there are often marked disturbances of nutrition, and possibly subsidiary intoxications. It has been shown that on sharp withdrawal of drugs that depress nervous functions, we bring about a back-sway, or counterfeit stimulation. In the sharp withdrawal of narcotics, we have ample evidence of intense crises in the vegetative nervous system, as shown by the hyperreactivity to emotional stimuli; at this time there is an inhibition to stimuli at psychic levels. In other words, the person in this condition is dominated by the horror-fear emotion, and he must and will get relief at any cost. The restrictions of law and the ideals of society find no response in this unfortunate. As the emotional and inhibitory features of the case subside, we find a mind keyed up in suggestibility which must be taken into account in every scheme of after-care, or what might better be called reeducation.

If we are able to avert this emotional outburst, we hasten convalescence, save the patient from much intense suffering, and make him amenable to reeducation in a military atmosphere in a shorter time. We shall always have to take into account nutritional damage in each case and effects of addiction on the nervous system other than those to which reference has already briefly been made.

While it has been amply demonstrated that addicts can be taken off their drug without much distress, and early convalescence thus initiated,[1] I shall make no further reference to methods of treatment in the hope that the problem may be approached on all sides without prejudice and with wholesome cooperation.

No scheme of procedure can be satisfactorily carried out until we have federal control of the distribution of narcotics, hospital facilities for the care of women addicts, licensing of physicians qualified to treat addiction, supervision over sanatoriums, and above all the abolition of heroin. In some sections, as noted, heroin addiction is a curse.

In my opinion a comprehensive plan for dealing with this problem should include a collecting station in or near each great center where addicts might be referred by the draft boards, go voluntarily, or be sent by court procedure. Any large building with small spaces preferably in an enclosure would answer for this purpose. Here addicts could be taken off their drug, and after this has been accomplished they would be ready to be moved on to the reclamation colony for the necessary reeducational after-care. Abandoned military camps or existing rural colonies would serve admirably the purposes of the reclamation plants. At the colony, kindly yet forceful discipline should prevail, such as one finds in our military camps. At this point addicts could be classified and studied, and when ready for transfer would pass on to the zone of disposition, prepared for assignment, each case on its merits.

---

[1] Surgeon-General's Report U. S. P. H. S., 1917.

Many might be enlisted for military service, more, no doubt, would be better fitted for industrial pursuits, while still others would be found unfitted for any war obligation. Some probably would require hospital treatment, or should be continued in addiction for humane reasons. Federal recruiting officers and existing industrial employment agencies would doubtless provide for the needs of the zone of disposition.

While I was in charge of New York City's colony for drug addicts and alcoholics, it was clearly demonstrated that drug addicts could be controlled by enlightened methods of discipline and administration, on an open farm without guards, and with the employment of few punitive measures. They took kindly to purposeful work when adequate recreational outlets were provided. Naturally those who had not been previously inured to arduous physical tasks could hardly be expected to do a man's share of heavy farm work at the outset; still, afterward many took up this means of gaining a livelihood and found employment on neighboring farms.

The longer they remained under these colony conditions, the closer they approached the normal in every way. I have had men with criminal records serving in my household, and have had no occasion to regret the experiment. The defections commonly charged to addicts in the majority of cases are largely due to the demands of the dominating impulsiveness of beginning or actual drug abstinence.

When these men were given employment away from former pals and old surroundings, they almost invariably did well. If, however, they returned to old associates, to their former domiciles and were confronted by sellers, or addicted women, they commonly relapsed. This was conspicuously the case with the adolescent heroinists. Stanley Hall and others have emphasized the fact that the attitude of the adolescent crowd sets at naught the restraining influences of religion, deterrent law, and home training. As heroin is the contaminating agent in the great majority of cases among adolescents, it should be abolished, particularly as this can be done without materially harming or discomforting the sick. Unless this is accomplished and our young addicts seek new fields of industry, we shall fail to break up this vicious circle; in fact, we shall find ourselves in the absurd endeavor of trying to "cure" adolescence. The necessity for the restrictive and legislative measures suggested above is evident.

It is time that an educational drive be inaugurated in which this problem may be stripped of mystery and sensationalism, and the facts of the situation laid bare. The addict should learn that he is chronically poisoned, and to this extent ill; he must get over the notion that there is any method of treatment that will return him to the normal with the same magic that his drug of addiction relieves his distress. It is this attitude that often defeats our efforts at treatment and leads to half hearted cooperation.

50 East Forty-Second Street.

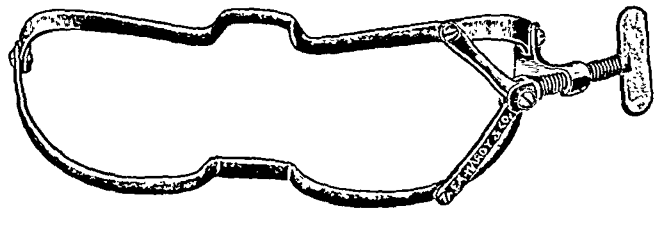
Knowledge.—Every mind was made for growth, for knowledge, and in its nature is sinned against, when it is doomed to ignorance.—Channing.

Clinical Notes, Suggestions, and New Instruments

A MOUTH GAG

Frank Allport, M.D., Chicago

With the exception of the device for opening the arms, this gag is the same as the Jennings mouth gag, except that it is perhaps a bit stronger. I have done away with the somewhat complicated machinery for opening and shutting the mouth gag, as devised by Jennings, and have employed a method similar to the one I suggested many years ago for my mastoid retractor. This will be seen in the accompanying illustration. The whole instrument is made strong in every way and, when placed between the teeth, will open the mouth by gradual force—in a way that cannot be accomplished by any of the other gags. The arms are opened by simply turning the screw head, and are shut in the same way. It is so simple as really to need no description, and I think that its simplicity and lack of complicated machinery will recommend it.



Mouth gag.

Considerable time can be saved by using this gag, because with others we have to wait until the patient is absolutely relaxed before beginning to remove the tonsils, whereas with this gag the force is so strong that a mouth can be opened before complete relaxation occurs. It is made in two sizes.

USE OF GLYCERIN IN THE EXAMINATION OF FECES FOR TYPHOID BACILLI

Edith A. Beckler, S.B., Boston
Bacteriologist, Massachusetts State Department of Health

The use of 30 per cent. glycerin in physiologic sodium chlorid solution as a medium for feces for delayed examination has been recommended by Teague and Clurman.[1] For the past year the diagnostic laboratory of the Massachusetts State Department of Health has employed an outfit containing this solution for specimens sent through the mail. The assumption has been that better results are obtained by streaking fresh material, if it is possible to obtain it, at once, or after emulsifying it in broth, on Endo plates or some other selective medium after incubating the emulsion for an hour or two at 37 C.

We have found by experience, however, that specimens of feces sometimes fail to show typhoid bacilli if plated while fresh or after broth enrichment, but after from twelve to twenty-four hours in glycerin show typhoid bacilli in considerable numbers. A specimen from a typhoid carrier received recently gave negative results on plates made directly from specimens of feces and after incubation in broth, but showed many typhoid bacilli after incubation in 30 per cent. glycerin for eighteen hours. Plates made from the glycerin suspension showed very few colon bacilli as compared with those from the fresh material or a broth suspension. The advantage of the glycerin would appear to be its marked inhibitory action on *B. coli* and its apparently slight effect on *B. typhosus*.

---

[1] Teague, Oscar, and Clurman, A. W.: Jour. Infect. Dis., 1916, **18**, 653.

Military Medicine and Surgery

TRANSFUSION WITH TESTED BLOODS

INCLUDING THE GROUPING OF ONE THOUSAND BLOODS AND A METHOD FOR USE AT ADVANCED HOSPITALS *

HOWARD T. KARSNER, M.D. (CLEVELAND)
Captain, M. R. C., U. S. Army
FRANCE

In military hospitals the indications for direct transfusion of blood, namely, hemorrhage, shock and prolonged infection, arise with considerable frequency. I do not wish to enter into a controversy over the value of transfusion in these various conditions, but will point out the value of the laboratory as an aid to conducting the operation without accident. It is well known that the use of indiscriminately selected donors may nullify the value of transfusion, or even be disastrous to the recipient, and it seems to be the case that accidents of this sort are more frequent in the base hospitals than in those nearer the front. The reason for this difference is not altogether apparent, but the patients at the base have been wounded for a longer period and have been drained by infection to a greater degree than those nearer the front. The fundamentals of this problem must be the subject of further investigation. In this base hospital of about 1,200 beds, transfusion has been practiced forty times with properly tested bloods. In two instances, reactions were noted in the recipients, one being due to a confusion of names of donors, whereby the donor's corpuscles were agglutinated by the recipient's serum, the other being a case in which the recipient's cells were agglutinated by the donor's serum. In both cases the reaction appeared after the introduction of about 50 c.c. of the donor's blood, and the operation was immediately stopped. In neither case was the reaction fatal.

TABLE 1.—BLOOD GROUPS *

Cells of Groups:	Serums of Groups 1	2	3	4
1	−	+	+	+
2	−	−	+	+
3	−	+	−	+
4	−	−	−	−

* The plus sign indicates agglutination and hemolysis. It will be seen that this grouping of Lee is the opposite of that of Ottenberg and others.

METHODS

Two methods of testing the blood have been used in this laboratory. The method of Kolmer as outlined in Webster's "Diagnostic Methods" was employed in fourteen cases. From a purely laboratory standpoint, this method was satisfactory and accurate, but was found to occupy a longer time for attaining results than the surgeons considered desirable. It cannot be completed in less than two and one-half hours, which means a great delay when the wounded and infected patient is suffering from a severe secondary hemorrhage. Hence the method of Lee[1] was welcomed and used with great success. This is based on the fact, long known, that the interaction of serum or plasma and red corpuscles places every individual in one of four groups, as in Table 1.

Any of the standard methods for demonstration of agglutination may be applied, but that recommended by Lee appears to be the simplest and quickest. For this test it is necessary to have the serums of individuals of Groups 2 and 3; a sufficient amount of these for establishing the method was kindly provided me by Major Lee. A platinum loopful of each of these serums is placed on a clean microscope slide, and to each is added either an equal amount of whole blood, or blood placed in 1 per cent. sodium citrate solution or in physiologic sodium chlorid solution. In reading the agglutination, care must be taken not to confuse rouleaux formation for agglutination. In this laboratory the routine of the test is carried out in the following manner:

From 0.5 to 1.0 c.c. of 0.85 per cent. sodium chlorid solution is placed in a small test tube, into which are dropped 2 drops of the blood to be tested. If a clot forms, a satisfactory emulsion of cells can be made by shaking the tube. A platinum loopful of each of the standard serums is placed on a clean slide, and into each drop a loopful of the blood emulsion is rubbed. The reading of the agglutination is made under the microscope (16. mm. objective) and is usually complete in from five to fifteen minutes. As will be seen from the table, if both drops show agglutination, the blood is in Group 1; if neither shows agglutination, it is in Group 4; and if one shows agglutination and the other not, the blood belongs to the group in which there is no agglutination. A somewhat smoother emulsion may be made by inverting the slide so as to convert the drops into hanging drops. The inverted slide can be placed on the microscope stage on another slide whose ends are built up with small pieces of fairly thick slide pasted on with balsam. We frequently use a Group 4 serum as a control. The reaction is so sharp that it is easily read; and if a microscope is not available, a lens of 10 diameters magnification will be quite ample in the hands of a trained worker; and the tests should be carried out by a properly trained man. Reports can usually be handed to the surgeon in fifteen minutes.

A large list of available donors may be grouped in this fashion, so that when a patient needs a transfusion, his blood may be quickly grouped, and a donor selected from the list posted either in the laboratory or the operating theater. Donors should be free from infectious disease, particularly syphilis.

It can readily be seen that if a donor is used in the same group as the recipient, the cells of neither will be agglutinated or hemolyzed. Lee maintains, however, that if the donor's serum, according to in vitro experiments, agglutinates the recipient's cells, such donor may be safely used because the donor's serum is thus diluted from five to twelve times, and in addition, the recipient's cells are "amply protected by his own serum," presumably because of the presence of some antiagglutinative substance. Conversely, if the donor's cells are agglutinated by the recipient's plasma, reactions appear which may be so severe as to be fatal, and at best such a transfusion would be of no value because the agglutinated cells are finally hemolyzed.

If these statements are true, Group 4 donors may be used for any transfusion, as their cells are not agglutinated by the serum of any group. In the same manner, Group 1 may receive blood from any donor, as the serum of Group 1 does not agglutinate any cells. While feeling sure that Group 4 may be used as the "universal donor" with almost complete safety,

---

* Aided by a grant from the American Red Cross.

[1] Lee, R. I.: A Simple and Rapid Method for the Selection of Donors, Brit. Med. Jour., 1917, 2, 684.

I prefer to use donors in the same group as the recipient when possible, because of my observation of one unfavorable case in which a reaction appeared, the test having shown that the donor's serum agglutinated the recipient's cells as demonstrated by the method of Kolmer. It also appears to me that the protection of the recipient's cells from agglutination by the donor's plasma is probably the result of an antiagglutinative body rather than because of dilution, for it can be shown that serum retains its agglutinative properties when diluted as much as thirty-two times. Naturally such an antiagglutinative body would operate better against a diluted plasma than against an undiluted plasma. The problem is further complicated by the variable agglutinability of cells from different individuals. The patient worn down by infection may possibly be less resistant to such agglutinative serums than the freshly wounded man. If standard serums are not obtainable, Lee recommends the following method as the minimum procedure for testing.[2]

> A small amount of blood is collected from a patient (1 c.c. from the ear or finger is sufficient), and allowed to clot. The serum is then obtained. One drop of this serum is placed on a slide and mixed with a drop of a suspension of blood of the donor taken into 1.5 per cent. citrate solution. (A few drops of blood are taken into approximately ten times the amount of 1.5 citrate solution and shaken. It is very important that the blood be dropped directly into the citrate, and should not be partially coagulated.) The test will appear in a few moments, and is best examined under the microscope, where, in the event of a positive test, marked agglutination will be evident. The test will also be evident macroscopically. In the event of a negative test it is a wise precaution to raise the cover glass, and after making sure that the serum and cells are well mixed, to examine the preparation again. The only possible source of confusion is the appearance of rouleaux of the red corpuscles, indicating a too thick emulsion. If the test is negative, transfusion may be regarded as entirely safe.

PERCENTAGE DISTRIBUTION OF GROUPS

The figures with which I am familiar are based on a relatively small number of observations. Statistics of this sort naturally increase in accuracy with the number of observations. As a large number of soldiers could be examined, the bloods of 1,000 individuals were subjected to examination with the results given in Table 2.

TABLE 2.—CLASSIFICATION OF BLOOD IN ONE THOUSAND CASES

	Per Cent.
Group 1	3.1
Group 2	42.4
Group 3	8.3
Group 4	46.2
	100.0

Granting that Group 4 is the universal donor, the chances of a member of any group having a suitable donor in case the blood is not tested are as indicated in Table 3.

TABLE 3.—CHANCES OF HAVING A SUITABLE DONOR

Group 1	493 in 1,000
Group 2	886 in 1,000
Group 3	545 in 1,000
Group 4	462 in 1,000

If the group percentage in each group is multiplied by the favorable chances of that group expressed as fractions of 1,000 and the results added, the total gives the chance of any individual having a successful transfusion, if the bloods are untested. This figure is 649 in 1,000. I am indebted to Lieut. W. B. Rogers of the Lakeside Unit for perusal of his notes on a series of transfusions with untested bloods at a casualty clearing station in order to determine how closely the theoretical figure 64.9 per cent. approximates the chance in actual practice. Ruling out thirteen cases, the notes of which are not complete owing to the rush of work, and ten cases which were hopeless at the start, there are thirty-six cases, of which ten showed reactions varying from a slight chill to severe rigor, or 73 per cent. without reaction of any kind.

TESTING AT ADVANCED HOSPITALS

The first point behind the lines at which transfusion is practicable is at the casualty clearing stations, or evacuation hospitals. Frequently such a station may have no laboratory of its own, but may be served in conjunction with several others by a central laboratory. It is obviously impossible to test recipient's blood in need of immediate transfusion if the laboratory is several miles away. It is possible, however, to test prospective donors, send the results to the hospital, and use Group 4 as the universal donor. Delay in transportation of the blood to be tested is of little importance, and we have found that blood taken into salt solution and kept at room temperature will retain specific agglutinability for seventeen days, in spite of the appearances of distinct hemolysis in the tubes. If considered desirable, it would be possible to test donors at the central laboratory, and have recipients tested at the casualty clearing stations, thus preventing the use of only Group 4 donors.

For purposes of testing at the casualty clearing stations, it was at first thought that the stations could be provided with slides on which were dried drops of the necessary serum; but it was found that after drying for several days, the serum was not easily redissolved, and when redissolved, it had lost its agglutinating power. Supplying the stations with ampules of serum was not considered desirable because of the difficulty in keeping the serum free of infection. In order to overcome these difficulties, it was decided to provide the "resuscitation teams" with serum in tubes, drawn out of glass tubes, similar to those in which glycerinized vaccine virus is provided. If desired, the serum may be preserved with 0.5 per cent. phenol (carbolic acid), for we have determined that this does not alter the titer of the serum, and that it agglutinates powerfully for at least a month after being phenolated and remaining at room temperature. Accordingly, a team has been sent to a casualty clearing station with this equipment:

Six microscope slides.
Six tubes, 75 by 10 mm.
Fifty small tubes of Group 2 serum.
Fifty small tubes of Group 3 serum.
One copper wire loop (platinum and aluminum not being available at the moment).
One hand lens of 10 × magnification.

This can be packed in a tin such as carries 100 cigarets, and is thus easily transportable. The serum is blown from the tubes directly on the slide, and an equal amount of blood is suspended in physiologic sodium chlorid solution, rubbed in with the loop. The slide is inverted, stands at room temperature for ten minutes, and the result is read with the hand lens.

---

[2] At the time of writing this paper I was not familiar with the method of Rous and Turner which is superior for places not equipped with the standard serums (Rous, P., and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, The Journal A. M. A., June 12, 1915, p. 1980).

The loop must be dried with a towel or blotter in going from one serum to the other, but does not necessarily need sterilization. As the serum is exhausted, a new stock can be forwarded; but because of the chance of deterioration when kept at room temperature, it is well not to send too great a stock.

This method has been found to be entirely satisfactory in the hands of Lieuts. B. F. Harrison and W. R. Barney; but any method for use at a casualty clearing station presupposes a firm conviction on the part of the operators that testing of the blood is of fundamental importance. It is highly desirable that the surgeon undertaking the procedure be familiar with general laboratory technic and that he has seen the test carried out by some experienced person.

THE BRITISH ZONE OF THE ADVANCE

MAJOR GEORGE de TARNOWSKY, M.D.
(CHICAGO)
Major, M. R. C., U. S. Army
A. E. F., France

GENERAL CONSIDERATIONS

It may be stated as a truism that any comparison between the French and English methods of treatment or evacuation of the wounded in their respective zones of advance is impossible, because of radical differences in the topography of the land and in the general conception of trench warfare.

The English have maintained a comparatively short front, difficult to hold and correspondingly more difficult to advance in. They have pinned their faith in density of front, with continuous activity along the entire front, alternating with intense attacks in selected sectors. The enemy, constantly and diligently harassed, retaliates in kind; the pressure is constantly maintained, night and day. This unending "strafing" has naturally multiplied the problems of evacuation, increased the distance between the front lines and the regimental aid posts, and lengthened the elapsed time between the reception of a wound and its thorough surgical treatment. The evacuation hospitals or casualty clearing stations (C. C. S.'s) are under more or less constant bombardment, either by large caliber naval guns or aeroplane guns (Archies); they have frequently had to be moved about from place to place, and it has been impossible to keep the wounded in the zone of the line of communications until their wounds are healed.

The inevitable result has been that the British base hospitals have had to perform a good percentage of primary operations and a still larger percentage of secondary or completing operations.

Primary closure of wounds, after thorough excision of all devitalized tissues, which is now almost an axiom in the French army, is still in the experimental stage with the British (January, 1918). This apparently radical difference in the zone of advance should not be laid at the door of conservatism; rather is it due to the time element, the extremely precarious position of the casualty clearing stations, and the consequent necessity of rapid evacuation of the wounded men to the base.

An advance research hospital has lately been established in one of the casualty clearing stations for the purpose of testing out the possibilities of primary or primosecondary closure of wounds. The results are very encouraging and will, no doubt, lead to a gradual adoption of the French method. Every effort is made to get the wounded to the casualty clearing stations while the wound infection is still localized; stretcher bearers and ambulance drivers are straining every effort toward expediting evacuations, working under surroundings of almost indescribable difficulties.

TOPOGRAPHY OF THE LAND

The salient that I visited forms part of the plain of Flanders, the gentle slopes affording no protection from enemy visibility. The rainfall is always very heavy, and the constant presence of surface water makes trench digging impossible. The principal city is a mass of ruins, and the few scattered villages in the two sectors visited have entirely ceased to exist.

For miles in every direction, there is hardly a square yard that is not represented by a shell hole, full to the brim of muddy water. The mud, a mixture of clay and sand, is treacherous to the extreme; men have actually disappeared, as though swallowed up in quicksand. Roads are either under constant shell fire or have been entirely destroyed as one approaches the front lines. Consequently all movements of troops, as well as the evacuation of the wounded, take place along the "duck-board" paths laid on posts driven in the mud. Bodies of horses and men lie, unburied, in shell holes, polluting water and soil and filling the atmosphere with a stench that seems at times almost unbearable. Trenches being impossible to construct or maintain, on account of the mud and water, the men in the front lines are forced to crouch in shell holes from which the water is bailed or pumped out. The only relative protection against shell fragments is afforded by the "pill boxes" which the enemy had constructed when he held that part of the sector. These pill boxes are ferroconcrete mitrailleuse forts, approximately 20 feet square and 8 feet high in the interior chamber. The British use these for regimental aid posts or relay stations for stretcher bearers.

A duck-board path is usually 3 feet wide and from 1 to 3 feet above the mud and water. Attempts have been made to build them double or even triple width, in order to evacuate the wounded on two wheeled stretcher carts; but the experiment has, so far, not been very successful owing to greater exposure to shell fire. In order to avoid enfilading fire they are always built zigzag, direction being changed about every 20 yards. A special evacuation line, 4 miles long, was built; but, owing to the density of troop movements, this path has to be utilized by fighting units as well as by noncombatants, so that the congestion is often very great.

A few narrow gage railroads extend to within 2,000 yards of the front lines, but they are so frequently destroyed by shell fire that the Medical Corps has not seen fit to utilize them for purposes of front line evacuations.

From military, sanitary and surgical points of view, it is impossible to conceive of a more stupendous task than the one confronting our allies in this sector. It is unbelievable until one has actually visited it from front lines to zone of communications; it is equally impossible to describe its horrors after one has seen it. One cannot help feeling unbounded admiration for the bulldog tenacity, courage and spirit of self-sacrifice which alone have enabled the British army to "hang on" to this salient for almost four years and to advance their lines in the face of such gigantic topographic and climatic difficulties.

THE REGIMENTAL AID POST

Situated about a thousand yards from the interconnected shell holes which form the front line, the regimental aid post occupied one of the pill boxes mentioned before. I am proud to be able to state that the first lieutenant, M. C., in this post was one of the many American medical officers in the temporary service of the British army. He had under his command a sergeant H. C., two orderlies and eight squads of stretcher bearers.

Owing to the meager dimensions of the shelter, which also had to house the entire personnel, no attempt could be made to treat any wounds surgically. Thomas splints, dressings and bandages were in stock, with sodium bicarbonate for "gassed" patients. No antitetanic serum was given them, but morphin could be administered in suitable cases. The aid station was essentially a protection against shell fragments and a point of departure for the stretcher bearers. The personnel slept in the most sheltered part of the pill box, and the cooking was done in a small lean-to added on to the side least exposed to shell fire. During a barrage fire that I witnessed, the rear of one of these kitchens was completely destroyed by a direct hit, while another shell fell immediately in front of the pill box entrance, fortunately without causing any casualties.

The chief antiseptic used was a 2 per cent. solution of picric acid, wet dressings being applied to all severe wounds. There was no dressing table, and no emergency operations such as tracheotomies or clamping of blood vessels could be performed. Tourniquets had to be used, but were released and readjusted at the aid station and relay posts, if written instructions to that effect were put on the diagnosis tag. Hot drinks were supplied to both wounded and combatants, and shock patients were heated by means of a Beatrice stove enclosed in a makeshift receptacle to which a piece of stove piping was soldered. An iron cradle is placed over the stretcher, blankets thrown over it and tucked around the patient, and the piping carries the hot air to the extemporized chamber, corresponding to the *cellule chauffante* of the French. The simplest hot air apparatus consisted of a Beatrice stove placed inside of a 4 gallon gasoline can with a hinge door on one side and the stove piping riveted or soldered on top. Experiments have proved that within from ten to fifteen minutes, 140 degrees of heat can be obtained. The same apparatus is also used for drying blankets, rubber boots, etc. Hot water bags are also used around severely wounded men during their evacuation, empty ones being brought back with the stretcher.

RELAY POSTS

Approximately 1,000 yards apart, the relay posts constitute shelters for three or more squads of stretcher bearers in charge of a sergeant H. C., with reserve supplies of stretchers, blankets, hot-water bags and dressings. Two or more relay posts are maintained between the regimental aid station and the advanced dressing station 5,000 yards behind the front lines.

Water is brought up in 4 gallon gasoline cans from the nearest filtered and chlorinated water supply station. Hot food reaches the relay posts and front lines in gasoline cans placed in gunny sacks and surrounded by a 3 inch layer of hay. The food remains hot for six hours. When surrounded by a 1 inch layer of absorbent cotton, the food in the cans will retain its heat for ten hours.

ADVANCED DRESSING STATION

Approximately 5,000 yards behind the firing line, the advanced dressing station represented a divisional field ambulance occupying a semipermanent post. The ruins of a château had been fairly adequately protected against shell fire by means of corrugated iron roofing and four layers of sand bags. A double sliding door gave good protection against gas attacks. Light was supplied by acetylene lamps and candles. A captain M. C. was in command and a sergeant H. C. and eight orderlies constituted the personnel. The dressing room, 8 by 12 by 22 feet, contained a dressing table, sterilizing outfit and an ample supply of ordinary surgical instruments, splints, dressings, etc., besides 600 blankets, 100 suits of pajamas and sixty hot-water bags. Emergency operations could be performed only during periods of relative calm. Antitetanic serum was occasionally given here, but not as a routine procedure. In gassed cases, whether caused by phosgen or combined chlorin and phosgen, the patients were treated by inhalations of steam with 1 ounce of tincture of benzoin compound to a pint of water. Th slightly gassed patients walked around the improvise nozzle, taking turns at inhaling the steam. Th severely gassed patients, "lying cases," had the sam steam passed around from stretcher to stretcher.

From the advanced dressing station a narrow gage railway could bring the wounded to the corps main dressing station, if not subjected to barrage fire Evacuation was by means of two specially fitted up trucks with a carrying capacity of sixteen stretcher and eight sitting patients. The trucks were drawn by a small gasoline engine, the round trip taking an hour Motor ambulances, although subjected to shell fire also reached the advanced dressing station, especially at night time.

Bomb proof shelters were in the course of construction, but the presence of surface water rendered the task an extremely difficult one. Shelters were as a rule built of corrugated iron sheeting covered over with three or four layers of sand bags. None were proof against a direct hit. Sleeping bunks for staff and personnel were invariably surrounded by a wall of sand bags 3 feet high, in order to obtain protection against shell fragments. In another sector of the same salient, a dugout 24 feet deep, 400 yards long, 6 feet wide and 7 feet high had been constructed. Water trickled down both entrance and exit stairways and from the ceiling and sides of the gallery, necessitating the constant use, night and day, of two hand pumps in order to prevent flooding. The stretcher bearers were obliged to live amid these insanitary surroundings, sleeping on water-soaked stretchers placed on the floor of the gallery. This experiment was not considered a success by the Medical Corps, but some shelter had to be provided for the men as there were no available pill boxes or ruins of houses to act as a nucleus of protection.

COLLECTING POST FOR THE SLIGHTLY WOUNDED AND SICK

Situated 1,000 yards behind the advanced dressing station and approximately 6,000 yards behind the firing line, the collecting post for the slightly wounded and sick consisted of several corrugated iron huts reinforced by sand bags, in which the sick and slightly wounded could gather for evacuation by way of a narrow gage railway. Their wounds were rapidly cleansed, tincture of iodin or picric acid being the antiseptic used. The medical officer in charge divides the patients into those who will be well in a week and those who will require two weeks or a little longer, a certain elasticity being allowed in the latter cases. No diagnosis is made of the men reporting as sick; they are sent to the divisional rest station for observation. Twice daily, the narrow gage railway gathers the men in the collecting post and carries them to the divisional or corps resting stations. Should the railway become unavailable, the horse ambulances in reserve are utilized for this particular evacuation.

CORPS MAIN DRESSING STATION

Eight thousand yards behind the firing lines, and occupying the spacious cellars of a public building, in the principal city of the salient, the corps main dressing station represented the first semipermanent field ambulance where emergency operations could be performed amid proper surroundings. The evacuation of wounded from two sectors converged at this point.

The cellar was bomb proof, well lighted by electricity and acetylene lamps, possessed space for fifty stretchers, and had a round dressing room large enough for six operating tables and necessary equipment. The wounded, arriving by motor ambulance from the advance dressing station, are examined in the motor itself by a surgeon; the severely wounded needing immediate operation, such as those having intra-abdominal, intrathoracic or intracranial wounds, are not removed from the ambulance but continue their journey directly to the casualty clearing station, thus shortening the interval by at least two hours. Those requiring emergency operations (hemorrhages, threatened edema of the glottis, etc.) are immediately carried down to the operating room and treated; shock patients, if they have not yet received treatment, or have relapsed, are also given a "hot air" course and 30 grains of sodium bicarbonate by mouth, together with hot drinks, highly sweetened, before continuing with their journey. Fractures are examined and splints readjusted if necessary. To recapitulate: The severely wounded *remain in* the motor ambulances and go directly to the casualty clearing station; all other patients are carried to the corps main dressing station for treatment or to await evacuation by hospital train. At a stated hour every day, the hospital train takes these patients to various casualty clearing stations along the line. Antitetanic serum (from 500 to 1,000 units) is given to all patients in the corps main dressing station, and morphin, ¼ grain, in restless cases.

Even in periods of relative calm, no surgical excision of lacerated tissues is attempted; no foreign bodies or pieces of detached bone are removed unless they appear in the wound and are readily removable. There is no roentgen-ray equipment present, or contemplated, in the dressing station.

The vast, bomb proof, well ventilated and well lighted cellars formed an ideal place for advanced surgery, and I received the distinct impression that such a possibility was being considered. There were ample means in the surrounding ruins to house a much larger surgical staff and personnel in bomb proof rooms, and several evacuation routes, roads, narrow and normal gage railroads, afforded ample means for receiving and evacuating the wounded.

DIVISION AND CORPS REST STATIONS

The division and corps rest stations correspond to the French *hôpitaux des ecloppés* and to our own hospitals for the slightly wounded. The practice is to keep all sick and wounded who will presumably be well in a week at the division rest stations. If, in the opinion of the surgeon, a given case will require longer than a week, he is sent to the corps rest station, where he is further studied and accurately diagnosed. In order to keep up the morale of these patients, all sorts of amusements (concerts, movies, games, etc.), are provided.

Once daily, a special shuttle train carries the evacuation patients (not cured within the specified time) from the division rest station to the corps rest station, or from either of these stations to the casualty clearing station, if prolonged treatment is deemed necessary. The staff and personnel of these rest stations is obtained from the reserve divisions behind the two converging sectors. As a general practice, all patients requiring over two weeks' hospitalization are sent down to the casualty clearing station for treatment.

TRENCH FOOT PROPHYLAXIS STATIONS

During the rainy season, and in the absence of massed attacks or "shows," as the British call their advances, trench foot produces the greatest single percentage of casualties. The whole question has been most minutely studied; no time or expense has been stinted in order to produce results. The present system of prophylaxis and active treatment has given the most satisfaction, but the ideal has not yet been attained. Whenever possible, the men in the shell holes constituting the front line are relieved every forty-eight hours. In a certain unusually exposed sector, this has not been found economical, the commanding officer being able to prove that the casualties incident to the relief of troops through barrage fire was greater than those caused by trench foot. The men in this sector are consequently required to remain at their posts for five-day periods.

Repeated questioning of trench foot victims brought out the fact that prophylaxis in shell holes could not be observed in many cases. One soldier tersely expressed himself thus: "If I get my feet out of the mud and water, I slip in and drown; after twelve hours my feet are so swollen that I cannot remove my shoes; how can I have my feet rubbed or change my socks?" Several officers corroborated this statement. Each man in the front line is equipped with a square of tarpaulin or rubber sheeting, on which he sits or crouches. In order to warm his tea, he is supplied with a "Tommy's cooker," a small lamp containing solidified paraffin as fuel, over which he heats his cup or pan, fifty of these lamps being supplied to each battalion. Hot food reaches him at night time in the cans described above. Before going to the trenches, and immediately on returning from them, each soldier is obliged to take the prophylaxis against trench foot described below. The use of rubber boots has proved disappointing on account of the impossibility of drying the interior of the boots. The perspiration soon soaks the socks through and through, and the men complain bitterly of cold feet. Puttees are prohibited in the shell holes because they favor venous stasis; the men wrap gunny sacks around their legs, with a piece of loosely applied string to keep them in place.

TRENCH FOOT REGULATIONS OF THE BRITISH ARMY

Prevention.—In order to minimize the occurrence of trench foot and frost bite during winter, instruction in the measures of prevention detailed below will be commenced before cold weather commences.

Commanding officers will be reminded that the loss of effective strength due to the prevalence of this trouble is an indication of faulty discipline and faulty interior economy, and they will, therefore, be held responsible that the instructions laid down are carried out under the strictest supervision by company officers.

Regular foot-rubbing drills will be carried out throughout the army during inclement weather, both in and out of the trenches. Such drills improve the circulation, and should be started long before the men have to go in the trenches.

The following preventive treatment will be carried out, either by divisions (at the main dressing stations), or regimentally in a hut or building set apart for the purpose. The treatment will include the use of:

(*a*) A soap made of soft potash soap, 1,000 parts; powdered camphor, 25 parts; powdered sodium borate, 100 parts, and

(*b*) a powder composed of powdered talc, 1,000 parts, and camphor, 25 parts.

A teaspoonful of powder and ¼ ounce of soap will be required for each man.

The quantities of the ingredients required per division per week are, experimentally, potash soap, 300 pounds; camphor, 22 pounds; sodium borate, 35 pounds; talc powder, 500 pounds.

The feet will be washed in hot water with ordinary soap, then in hot water with the soap (*a*). They will next be carefully dried, and the nails will be attended to by the chiropodist. Particular care must be taken to clean out the grooves at the sides of the nails. Finally the feet will be dusted with the powder (*b*), a little of which will also be dusted into the socks. (In each trench foot prophylaxis, there is a central low table with a half inch of talcum powder spread over the top, over which the men walk barefooted in order to run the powder thoroughly over the feet. The socks are also turned inside out and thoroughly dusted with the same powder. This method has been found to be most rapid and thorough.) The men are then ready to go in the trenches.

While in the trenches, his boots and socks will be taken off at least twice a day. The men will be told off in pairs, and each man will be held responsible for the feet of his comrade. He will first dry and then massage the latter's feet from the toes upward. He will then dust some of the powder over the feet, between the toes, and into the socks. This treatment renders the feet antiseptic, gives rise to a very pleasant aromatic smell of camphor, and is very popular with all ranks.

Cure.—The measures detailed above will, if carried out thoroughly, reduce the numbers of cases of trench foot to a minimum, but they will not abolish them altogether. The application of the preventive treatment will result in a much milder class of cases, and these cases will be cured by the following treatment which will include the use of:

(*a*) The soap prescribed in (*a*) above.

(*b*) Camphorated oil.

(*c*) Camphor and ether solution, namely, camphor, 30 parts; ether, 1,000 parts.

(*d*) A spray of hydrogen peroxid, 10 volumes; 1 per cent. solution of sodium borate, 10 volumes.

(*e*) Boracic camphorated solution, namely, powdered camphor, 17 grains; borax, ½ ounce; boiled water, 1 quart.

Wash the feet with soap (*a*) and warm water. Cut and clean the nails, taking particular care with the grooves at the sides of the nails. Wrap the feet in absorbent cotton-wool soaked in solution (*c*). Cover this with gauze soaked in the same solution, being careful to include the toes. Apply jaconnet and loose bandage. Renew the dressings every day until the swelling and edema disappear. This frequently takes place in three or four days. The jaconnet can then be discontinued. Then anoint the feet every day with camphorated oil until the feet are quite cured. Small blisters or bullae need not be opened. Large ones, however, are freely excised aseptically and treated with solution (*c*).

In the graver forms with extensive sloughing, gangrene and suppuration, each dressing is preceded by spraying with the spray (*d*). It is necessary to remove sloughs as soon as possible, in order to get at the infective agents which multiply under the black patches; but care should be taken not to open up fresh channels of infection by too much surgical interference. Sores should not be made to bleed; only those portions should be removed which can be detached easily with forceps. Diseased portions of bone should be allowed to come away without help from bone forceps.

A dose of antitetanic serum should be invariably given in all cases. Where ulceration exists, the dose is repeated once weekly.

The effect of this treatment is most remarkable in promoting a healthy action in sloughing ulcers, rapid healing and cessation of pain. In fairly severe cases, the swelling quickly subsides and the men are fit for duty in two or three weeks.

The early application of the treatment is most important, and it is a mistake for men not to report sick early.

A continuance of exposure to wet and cold may cause loss of foot or limb.

Keep cases in the C. C. S., if possible, for five or six days, as this is the dangerous period. Evacuated cases should be lying, not sitting. This is most important; placing the feet in a dependent position favors sloughing and retards recovery.

Trench foot is favored by standing in wet boots and is aggravated by the use of tight boots, tight puttees and the wearing of anything causing constriction of the lower limbs. Action on the following lines, in addition to the preventive treatment given above, will, therefore, be carefully and systematically carried out:

(*a*) Trenches will be kept as dry as possible.

(*b*) Men in water-logged trenches will be relieved every twenty-four hours, if possible.

(*c*) Rubber boots are to be worn in water-logged trenches, or boots two sizes too large and very loosely laced.

(*d*) No puttees should be worn in the trenches.

(*e*) Extra pair of socks for every man in the trenches. (The men are now given three pairs of socks before they go up to the front lines; they should be provided with an extra pair of boots.)

(*f*) Encourage the men in the trenches to move about. Do not allow the men to hold their feet near a fire or to dip them in hot water.

(*g*) Warm food, hot drinks, shelter and warmth are to be provided for the men in the trenches.

(*h*) On leaving the trenches after a tour of duty, the men should remove wet boots and socks, thoroughly dry rub the feet, and put on dry socks and dry boots.

CORPS DELOUSING STATION

It is wellnigh impossible to live in the zone of the advance without becoming "lousy." The station visited consisted of a stone building, with barracks for the men. While the latter are having a hot shower bath, with soap and soft brush, their clothes and leathers are being deloused. Air tight chambers with sliding doors, each capable of containing 300 pieces of clothing, hung on racks, are heated up to 214 for ten minutes, followed by dry heat for ten minutes, in order to dry the clothing. The leathers are treated in a separate chamber. The steam is turned on until the thermometer registers 200; it is then turned off until the thermometer drops down to 190, when the sliding door is opened and the leathers, strung on racks, are put in. The door is closed and hot air is turned in for half an hour. This method has been found not to injure leather. Both clothes and leathers are thoroughly dry after they have been given a shaking in the air, and they are immediately returned to the men in the bathing huts, who have been given numbered disks which correspond to those tied on to their clothing and leathers. The system is rapid, thorough, and has given perfect satisfaction. Before they take their bath, the men are regularly inspected by a junior medical officer for skin diseases, etc. There are separate cabins or rooms for the officers.

THE BRITISH EVACUATION HOSPITALS OR CASUALTY CLEARING STATIONS

Owing to the exposed nature of the terrain and the constant harassing warfare carried out in the British sectors, the casualty clearing stations have been subjected to repeated bombardment by long distance guns or avion bombs. Several of them have been destroyed; others severely damaged. The result has been to place them much farther behind the lines than the corresponding French formations. This fact must not be lost sight of, while attempting to draw any comparisons. Again, largely owing to their precarious positions, the majority of them are still housed in tents or marquees, instead of wooden barracks. The experience of the British army has been that a tent which has been in place for four months cannot be taken down and moved without being torn to pieces. It is estimated that only about 10 per cent. of a tent can be salvaged on moving camp. They are looked on as expensive in the long run, cold, easy to catch on fire, and very liable to blow down during a hurricane. Semicircular corrugated iron barracks, containing forty-four beds, are now replacing the tents. Wooden or corrugated iron barracks are used for operating rooms.

Each casualty clearing station is based on a capacity of 300 beds, but the majority have expanded to 1,000 beds. It is freely admitted that during a "show," primary suturing is never attempted on account of insufficiency of operating teams and lack of beds. The wounds are surgically excised and the wounded sent down to the base by hospital train from twenty-four to forty-eight hours later, if transportable. The patients who have to remain longer become very nervous and apprehensive, on account of the constant noise of British and enemy aeroplanes and the occasional bombing at night.

The research casualty clearing station has been conducting a series of experiments in order to determine the value of primary closure of wounds and the relative value of various solutions. The presence of hemolytic streptococci in culture is regarded as a contraindication to primary suture, yet the tendency is to rely more and more on the general clinical aspect of the wound and patient, and less and less on the laboratory report. While the research casualty clearing station is not yet ready to render a final report on the various solutions employed, the results so far tend to prove that the sine qua non of success lies, not in the antiseptic used, but in the radical excision of devitalized tissues.

Joint injuries are being closed primarily, after removal of foreign bodies, including projectiles and lavage with physiologic sodium chlorid solution. Methylated spirit is used for cleansing and irrigating wounds, as it is cheaper than ether. Drainage in joint cases is restricted to those presenting extensive comminution of bone, particularly of the head of the tibia.

The bismuth, iodoform and liquid petrolatum paste (bipp) of Rutherford Morrison is used once in extensive wounds. If the paste is repeatedly applied, the granulations become weak and show a tendency to break down. The present plan of treatment is to apply the paste once, and then use methylated spirit for subsequent dressings.

HEMOLYTIC STREPTOCOCCUS CAUSING SEVERE INFECTIONS AT CAMP ZACHARY TAYLOR, KY.

H. L. ALEXANDER, M.D. (NEW YORK)
Lieutenant, M. R. C., U. S. Army
LOUISVILLE, KY.

The acute infections seen at the base hospital of this camp, so far as they pertain to the respiratory tract, have undergone a changing history. In September and October they were principally pneumococcal in nature, producing occasional angina and lobar pneumonia. With the advent of a measles epidemic in November, bronchopneumonia, due largely to a streptococcus infection, became prominent, and a few cases of typical lobar pneumonia continued to occur. Empyema, mainly streptococcal, accompanying 30 per cent. of the pneumonias, some also appearing secondary to other foci, such as angina and tonsillitis, was of a particularly fatal nature. Otitis media then appeared frequently, sometimes associated with angina, but also occurring primarily. Mastoiditis caused by a hemolytic streptococcus was followed by a fatal septic meningitis in three instances. Toward the end of January the case incidence and bacterial virulence of these infections decreased, and as will be seen later, the biologic characters of the organism changed somewhat. The investigation here reported refers to patients seen in the base hospital where the more severe ones are sent, and to one localized outbreak occurring in camp, although milder infections with the organisms mentioned were prevalent throughout the cantonment.

In an attempt to define, if possible, the direct etiologic factor of these conditions, cultures were taken from affected tissues, and tabulations made of the various organizations from which the patients came. From 270 individuals 358 cultures were studied and classified as shown in Table 1.

The occurrence of other colonies in considerable numbers, when hemolytic streptococci predominated, were noted in the instances given in Table 2.

CULTURES OF HEMOLYTIC STREPTOCOCCI

Specimens were planted on 10 per cent. blood agar plates, and the growth noted after twenty-four hours' incubation. Hemolytic streptococci grew typically as small, round, gray, raised colonies with a wide surrounding zone of clearing, with the exception of a few cultures noted below. Transplants were then made into 1 per cent. glucose broth (ac. 0.1) which gave a sedimented growth in most instances. From this, organisms were studied morphologically, and it was noted that medium sized and long chained forms predominated. Tests for bile solubility, capsules, and inulin fermentation were made on thirty-five of the first 100 specimens selected at random, and also on all others showing turbidity on glucose broth, but in no instance were any of these positive.

No attempt was made to classify critically the strains examined other than to note hemolysis[1] and to grow twenty specimens selected at random on lactose and mannite serum water mediums. Of these, nine fermented both sugars, thereby identifying these strains with the group containing the *Streptococcus infrequens* and the *Streptococcus hemolyticus* 1, whereas eleven fermented lactose but not mannite, which places them in the group of *Streptococcus pyogenes* and *Streptococcus anginosus*. No salicin was available for final differentiation.

PATHOGENICITY

In some cases of empyema in which many aspirations had been performed, extending over considerable periods of time, it was noted that initial specimens gave typical growth with marked hemolysis, whereas in the later ones, hemolysis, although distinct, was not so striking. This could be largely restored by two passages through mice. Likewise, less abundant growth appeared in a few of these specimens, and in two instances, eventual aspirations resulted in sterility.

TABLE 1.—CLASSIFICATION OF CULTURES *

	Hemolytic Streptococcus	Nonhemolytic Streptococcus	Pneumococcus, Type I	Pneumococcus, Type II	Pneumococcus, Type IV	Pneumococcus, Unclassified	Micrococcus Catarrhalis	Staphylococcus Aureus	Staphylococcus Albus	Bacillus Mucosus-Capsulatus	No Predominating Organism	No Growth	Contaminated
Pleural fluid†	51	...	1	2	3	2	...	...	...	1	...	12	2
Tonsils	19	3	...	...	...	2	1	...	2	...	9	...	...
Throat (pharynx, larynx, etc.)	48	1	...	...	...	12	11	2	2	...	5	...	...
Sputum‡	22	...	8	8	13	...	...	...	...	...	3	...	...
Blood culture	6	...	3	2	...	...	...	...	...	...	...	42	3
Mastoid	9	...	...	...	...	...	...	...	...	...	...	3	...
Joints	3	...	...	...	...	...	...	...	...	...	...	...	...
Abscess (intramuscular, subcutaneous, lung)	6	...	...	...	...	...	...	1	...	...	1	...	...
Middle ear	2	...	...	...	...	1	...	...	...	...	...	...	...
Conjunctiva	...	...	...	...	...	1	...	...	1	...	1	...	...
Spinal fluid	2	...	...	...	...	...	...	...	...	...	...	...	...
Postmortem—													
Lung	8	...	...	1	...	...	...	...	...	...	...	...	...
Heart's blood	4	...	...	...	...	...	...	...	...	...	...	1	1
Pericardium	4	...	...	1	...	...	...	...	...	...	...	...	...
Mastoid cells	2	...	...	...	...	...	...	...	...	...	...	...	...
Lateral sinus	2	...	...	...	...	...	...	...	...	...	...	...	...
Abscess in brain	1	...	...	...	...	...	...	...	...	...	...	...	...
Peritoneum	1	...	...	...	...	...	...	...	...	...	...	...	...
Total	190	4	12	14	16	18	12	3	5	1	19	58	6

* Only predominating organisms are listed. Repeated specimens from one tissue of the same patient are listed as a single specimen. Cultures were taken from Dec. 27, 1917, to Feb. 12, 1918.

† Holman (Jour. Med. Research, 1916, 34, 377), reporting 1,027 human strains of hemolytic streptococcus from various sources, found only twenty-six, or 2.4 per cent., in pleural fluids, as contrasted with 14.3 per cent. in these statistics.

‡ Determined by Avery and by mouse methods. Pneumococcus Type II represents five typical and three atypical strains.

Guinea-pigs and large white rats resisted intraperitoneal injections of 0.5 c.c. of an eighteen hour broth culture, whereas white mice of approximate weights reacted thus: to 0.1 c.c., found dead after sixteen hours; to 0.01 c.c., found dead after sixteen hours; to 0.001 c.c., died after twenty-three hours.

Table 3 indicates the distribution of men from whom cultures were taken. These represent the majority of organizations in camp, and prove the infection to be widespread.

Thirty-four men of the Three Hundred and Ninth Sanitary Train, for the most part convalescent from acute bronchitis and infections of the upper respiratory tract, were isolated. Their throat swabs revealed the predominance of hemolytic streptococci in twenty-four instances. Dust from the floors of two of the barrack buildings (Three Hundred and Thirty-third and Three Hundred and Thirty-fourth Field Hospitals), where most of these men had been quartered, yielded hemolytic streptococci both by direct culture and from injection of suspensions of such dust into the peritoneal cavities of weaning rats. Floor sweepings from one of the squad rooms of Company L, Three Hundred and Thirty-sixth Infantry, which contributed more cases than any other company, likewise revealed hemolytic streptococci. Also in one of the rooms of the base hospital devoted to convalescent patients, floor dust yielded hemolytic streptococci, although after special cleansing, no further streptococci could be found. These organisms gave cultural reactions identical to those isolated from patients, and by sugar fermentations fell into the pyogenes-anginosus group.

TABLE 2.—OCCURRENCE OF COLONIES WHEN HEMOLYTIC STREPTOCOCCI PREDOMINATED

Micrococcus catarrhalis	17	Influenza bacillus	1
Nonhemolytic streptococcus	6	Micrococcus tetragenus	1
Staphylococcus aureus	6	Large gram-negative bacillus, mucosus capsulatus group	5
Staphylococcus albus	4		
Diphtheroid bacillus	2		

Specimens of milk showed occasional colonies of hemolytic streptococci, although only one source was tested, whereas the camp is supplied by many.

From four sick horses at the remount station, nasal swabs grew hemolytic streptococci in three instances; but this organization is several miles from the camp proper, where relatively few horses are used.

TABLE 3.—DISTRIBUTION OF MEN FROM WHOM CULTURES WERE TAKEN

	Company																
	A	B	C	D	E	F	G	H	I	K	L	M	Hdq.	Med. Dep.	M.G.	Supply	Total
45 Inf.	1	..	2	..	1	2	..	3	1	..	..	..	..	..	1	..	11
46 Inf.	3	1	1	1	2	1	1	1	..	1	1	1	1	..	..	..	15
333 Inf.	1	1	2	..	1	..	..	2	1	3	..	1	1	1	..	1	15
334 Inf.	..	..	2	..	..	..	..	..	..	1	..	..	..	..	..	..	3
335 Inf.	4	1	1	2	2	1	4	3	2	..	..	..	..	..	3	1	24
336 Inf.	1	4	2	5	1	3	4	3	2	..	10	5	..	..	4	..	44

159 Depot Brigade—Company													
4	5	7	17	18	19	21	24	27	29	33	36	41	Total
1	3	1	1	1	1	1	1	1	1	1	1	1	15

	Batt. A	Batt. B	Batt. C	Batt. D	Med Dep.	Total
325 Field Art.	..	..	1	..	..	1
326 Field Art.	2	2	1	2	1	8

	Company					Med. Dep.	1 Truck	2 Truck	Total
309 Eng.	1	2	2	1	2	1	..	..	9
309 Amm. Train	..	..	2	2	..	1	2	1	8
309 Amm. Train	..	..	1	..	1	..	..	..	2

	Field Hospital					
	333	334	335	336	Hdq.	Total
309 San. Train	12	9	6	7	1	35

Base hospital	13	Signal Corps	1
Q. M. C.	4	Officer's Training Bn.	1
309 Hdq. Troop	3	Recreation officer	1
325 M. G. Bn., Co. A	2	Casuals	3
327 M. G. Bn., Co. C	1	Nurses' home	2
Ordnance Dept.	1	Unclassified	38
Reg. Army Aviation Sec.	5		
Total			270

No hemolytic streptococci were isolated from the soil of the trenches, where many soldiers are employed.

The only antistreptococcus serum available was a commercial product which, tested against various strains, in no instance showed agglutinins in dilutions from 1:10 to 1:100.

---

[1] Blake, F. G.: Jour. Med. Research, 1917, **36**, 99.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1917

SIXTH ANNUAL REPORT

The Journal presents its sixth annual survey[1] of typhoid fever mortality in cities of the United States having over 100,000 population. The cities included in the summary number sixty, and are the same as those reported last year.[2]

The cities in Group 1 do not for the most part show any very material change from last year. Baltimore, New York, Philadelphia and Cleveland again make excellent records. Baltimore reaches a new minimum rate, a rate so low, indeed, that it was beaten by only two cities in the group in the five-year averages, 1906-1910. In addition to the improvements in the Baltimore water supply, the health department has made a vigorous attempt to find any typhoid carriers there might be among persons engaged in food-handling occupations.

In New York, milk was again responsible for a small typhoid outbreak in Manhattan in the first quarter of the year, and a more extensive one in Staten Island in the summer, the latter outbreak numbering seventy-two cases. "Patient inquiry among all who had possibly come into contact with the milk finally showed that an individual employed by the firm distributing the milk in Richmond had in his family two active cases of typhoid with which he came into intimate contact. On one or more occasions this individual appears to have acted as the direct conveyer of the infection."[3]

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (OVER 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1917	1916	Average 1911-1915	Average 1906-1910
Chicago	1.7	5.2	8.2	15.8
Boston	2.9	3.5	8.0	16.0
New York	4.0	3.8	8.0	13.5
Philadelphia	6.2	7.8	11.2	41.7
Cleveland	7.1	5.3	10.0	15.7
St. Louis	7.5	9.4	12.1	14.7
Pittsburgh	11.2	8.6	15.9	65.0
Baltimore	15.5	18.0	23.7	35.1
Detroit	17.8	15.0	18.1	21.1

The chlorination of the Cleveland water continues to prove a source of trouble and complaint. Early in the year the chlorin dosage was materially reduced against the protest of the city health authorities. It is possible that the slightly increased typhoid rate in 1917 as compared with the preceding year may be connected with this action. St. Louis reached the lowest point in its whole typhoid history, with the exception of 1915, when the rate was about the same (7).

Perhaps the most interesting change in Group 1 is the dropping of Detroit to the very bottom of the list, a change which we apprehended a year ago might occur, although it could hardly have been anticipated that Baltimore would so soon change places with the former city. The contrast between typhoid in Detroit and typhoid in Boston, New York and Philadelphia is very striking. It is evident that excessive typhoid is still a live problem for Detroit citizens to consider.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1917	1916	Average 1911-1915	Average 1906-1910
Newark, N. J.	3.5	5.3	6.8	14.6
Cincinnati	4.1	3.4	7.8	30.1
San Francisco	4.9	3.4	13.6	27.3
Seattle	5.1	3.0	5.7	25.2
Los Angeles	5.2	3.1	10.7	19.0
Minneapolis	5.9	5.8	10.6	32.1
Milwaukee	5.9	14.9	13.6	27.0
Buffalo	10.1	10.9	15.4	22.8
Washington	13.2	12.6	17.2	36.7
New Orleans	23.0	23.4	20.9	35.6

Chicago reports figures much lower than those heretofore recorded. Attention was called in our fifth annual report to the plea made by the Chicago Health Department in October, 1916, for "utmost care in the filling out of certificates" with special reference to typhoid fever. Some statistical objection has consequently been made to a direct comparison of the reported typhoid deaths before and after the date of this action. In a word, it is considered uncertain how far the reported typhoid rate in Chicago for 1917 really compares with that of preceding years.

The cities included in Group 2 (from 300,000 to 500,000 population) have records for the most part very similar to those for 1916. San Francisco, especially, maintains its excellent standing of a year ago, the figures for 1916-1917 indicating a material reduction as compared with the quinquennium 1911-1915. New Orleans, on the other hand, is not keeping up to its preceding five-year record.

The most noteworthy change in this group is shown by Milwaukee, which drops to a relatively low rate. As pointed out in our fifth annual report, Milwaukee suffered in January, 1916, from a severe water-borne typhoid outbreak, due apparently to some failure in the chlorination process. The health commissioner of that city deserves great credit for maintaining efficient chlorination throughout 1917 in spite of repeated complaints and objections. He is quoted in a Milwaukee paper as saying that "while the use of chlorin in the city water supply has its disagreeable features, it is absolutely necessary to use the chlorin in order to safeguard the health of the city." The continued use of chlorin in the water, he stated, was the penalty

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 to 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1917	1916	Average 1911-1915	Average 1906-1910
St. Paul	2.4	4.9	9.2	18.3
Rochester, N. Y.	3.1	5.1	9.6	12.8
Jersey City	3.2	6.8	7.2	12.6
Denver	5.1	7.2	12.0	37.5
Providence, R. I.	5.4	5.1	10.2	14.3
Portland, Ore.	5.5	4.6	10.8	23.2
Columbus, Ohio	7.6	13.4	15.8	40.0
Indianapolis	10.0	26.6	20.5	30.4
Kansas City, Mo.	10.0	10.6	16.2	35.6
Louisville, Ky.	12.2	9.7	19.7	52.7

---

[1] The preceding articles were published May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305, and March 17, 1917, p. 845.

[2] The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

[3] Weekly Bull., Dept. of Health, New York City, Sept. 22, 1917.

people must pay for mistakes of the past. "Ample warning was given and given often, but Milwaukee continued to disregard the warnings and continued to pour raw sewage into its drinking water with the results that might be expected." Milwaukee is to be congratulated on having a health commissioner who stands by his guns. It is expected that a new water intake will be completed in September of the current year, and that the danger of contamination will be considerably diminished.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1917	1916	Average 1911-1915	Average 1906-1910
Oakland, Calif.	1.9	4.0	8.7	21.5
Worcester, Mass.	4.8	3.7	5.0	11.8
Scranton, Pa.	6.0	5.4	9.3	31.5
Syracuse, N. Y.	6.3	12.2	12.3	15.6
Omaha	6.4	5.1	14.9	40.7
Richmond, Va.	7.0	24.1	15.7	34.0
Spokane, Wash.	7.1	2.0	17.1	50.3
New Haven, Conn.	9.2	8.0	18.2	30.8
Toledo, Ohio	9.7	22.9	31.4	37.5
Paterson, N. J.	11.3	1.4	9.1	19.3
Atlanta, Ga.	16.8	17.9	31.4	58.4
Fall River, Mass.	16.9	10.9	13.4	13.5
Memphis, Tenn.	21.1	36.3	42.5	35.3
Birmingham, Ala.	54.1	42.6	....	....

Group 3 (from 200,000 to 300,000 population) makes the best record of any of the five population groups. Seven of the ten cities have a lower rate than in 1916, and the group-rate shows the greatest proportionate reduction (Table 7). Three of the cities report rates under 5.0 (St. Paul, Rochester and Jersey City).

Indianapolis shows a marked decline from the relatively high typhoid rate of 1916, and now ranks well with other northern cities. During the past year, considerable criticism has been expressed about the sanitary conditions in Indianapolis. Among other things, the extension of the sewerage system and the enforcement of sewer connections in the more settled parts of the city have been specifically urged. In this connection it was pointed out that in 1916 some 20,000 open vaults existed in Indianapolis. If this is still the case, the powder magazine is evidently ready for the spark which shall touch it off. It will be noticed from the table that the 1911-1915 average in Indianapolis was the highest in the group. It is to be hoped that the marked improvement shown in the 1917 record is an indication that Indianapolis has turned the corner toward genuine sanitary betterment.

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population 1917	1916	Average 1911-1915	Average 1906-1910
Tacoma, Wash.	2.5	3.5	10.4	....
Camden, N. J.	3.7	11.3	4.5	....
Cambridge, Mass.	4.4	0.9	4.0	9.8
New Bedford, Mass.	5.7	4.2	15.0	16.1
Springfield, Mass.	6.4	4.7	17.6	....
Bridgeport, Mass.	6.4	9.0	5.0	10.3
Lowell, Mass.	6.9	11.4	10.2	13.9
Reading, Pa.	7.4	18.7	31.9	42.0
Albany, N. Y.	10.5	7.7	18.6	17.4
Grand Rapids, Mich.	12.2	15.6	25.5	29.7
Trenton, N. J.	12.3	6.3	22.3	....
Hartford, Conn.	13.3	6.3	15.9	19.0
Dayton, Ohio	13.7	14.7	14.8	22.5
Salt Lake City	18.1	10.2	13.2	....
Nashville, Tenn.	18.3	27.3	40.2	61.2
Dallas, Texas	19.4	27.5	....	....
San Antonio, Texas	25.7	16.9	29.5	....

In the course of the year some discussion has occurred as to the character of the Rochester water supply. An investigation was made by officials of the New York State Department of Health, and a reassuring report on the quality of the supply was published. The low typhoid rate in Rochester does not indicate that contamination of the public water supply has played any important part in the production of typhoid fever in that city. Louisville, although showing a slight increase as compared with 1916, has maintained a relatively satisfactory position.

The cities of Group 4 show in many instances an improvement on the 1916 record. Especial attention may be directed to the low rates in Oakland, Worcester, Scranton, Syracuse and Omaha. The 1916-1917 rates in all these cities indicate a still further reduction for the current five-year period over the relatively low averages, 1911-1915. The same is true of New Haven, which for the second time shows a rate under 10.

Perhaps the most significant typhoid diminution in this group is that shown by Richmond, Va. There now seems little doubt that in the past few years Richmond has suffered considerably from water-borne typhoid. The special efforts recently focused on this source of trouble have apparently reduced the typhoid rate to the lowest point in the city's history, and a rate that for a Southern city must be considered remarkably low. Typhoid reduction in Richmond in the past ten years reflects great credit on the health administration.

TABLE 6.—DEATH RATES FROM TYPHOID IN 1917

First Rank (Under 5.0)			
Chicago	1.7	Newark, N. J.	3.5
Oakland, Calif.	1.9	Camden, N. J.	3.7
St. Paul	2.4	New York	4.0
Tacoma, Wash.	2.5	Cincinnati	4.1
Boston	2.9	Cambridge, Mass.	4.4
Rochester, N. Y.	3.1	Worcester, Mass.	4.8
Jersey City	3.2	San Francisco	4.9
Second Rank (5.0-10.0)			
Denver	5.1	Omaha	6.4
Seattle	5.1	Springfield, Mass.	6.4
Los Angeles	5.2	Lowell, Mass.	6.9
Providence, R. I.	5.4	Richmond, Va.	7.0
Portland, Ore.	5.5	Cleveland	7.1
New Bedford, Mass.	5.7	Spokane, Wash.	7.1
Minneapolis	5.9	Reading, Pa.	7.4
Milwaukee	5.9	St. Louis	7.5
Scranton, Pa.	6.0	Columbus, Ohio	7.6
Philadelphia	6.2	New Haven, Conn.	9.2
Syracuse, N. Y.	6.3	Toledo, Ohio	9.7
Bridgeport, Conn.	6.4		
Third Rank (10.0-20.0)			
Indianapolis	10.0	Hartford, Conn.	13.3
Kansas City, Mo.	10.0	Dayton, Ohio	13.7
Buffalo	10.1	Baltimore	15.5
Albany	10.5	Atlanta, Ga.	16.8
Pittsburgh	11.2	Fall River, Mass.	16.9
Paterson, N. J.	11.3	Detroit	17.8
Louisville, Ky.	12.2	Salt Lake City	18.1
Grand Rapids, Mich.	12.2	Nashville, Tenn.	18.3
Trenton, N. J.	12.3	Dallas, Texas	19.4
Washington, D. C.	13.2		
Fourth Rank (Over 20.0)			
Memphis, Tenn.	21.1	San Antonio, Texas	25.7
New Orleans	23.0	Birmingham, Ala.	54.1

Toledo, for the first time, shows a substantial reduction in the typhoid rate. It is no longer in the fourth rank (cities with a typhoid rate of over 20), whereas in 1916 it was the only Northern city in that unenviable position.

Paterson and Fall River show considerable increases over 1916. We are informed that special investigations of the typhoid conditions in Fall River have been made with the cooperation of the state department of health, but that the precise cause for the increase has not been ascertained. The higher rate for Paterson seems to be due to a typhoid epidemic in a neighboring town. Since there were no local facilities for caring for the sick, the patients were sent to the Paterson hospitals. It is thought that the increase in the Paterson figures can be largely, if not altogether, accounted for in this way.

The typhoid rate in Atlanta continues to show improvement, and the Memphis rate is the lowest ever recorded. Birmingham shows a disturbing increase in a rate already far too high. Why should Birmingham have three times as much typhoid as Atlanta?

TABLE 7.—AVERAGE DEATHS FROM TYPHOID PER HUNDRED THOUSAND IN EACH GROUP, 1916 AND 1917

Group	Year	Number of Cities	Total Population	Number of Deaths	Average Deaths per 100,000
1	1916	9	13,743,746	854	6.2
1	1917	9	14,027,263	774	5.5
2	1916	10	4,053,281	344	8.5
2	1917	10	4,150,099	329	7.9
3	1916	10	2,635,983	248	9.4
3	1917	10	2,701,029	173	6.4
4	1916	14	2,250,991	330	14.7
4	1917	14	2,310,372	307	13.3
5	1916	17	1,983,918	235	11.8
5	1917	17	2,031,313	229	11.3
Total ..	1916	60	24,667,919	2,011	8.1
Total ..	1917	60	25,220,076	1,812	7.2

Group 5 (from 100,000 to 125,000 population), considered as a whole, shows less improvement over the 1916 rate than any of the other groups. Reading attains a remarkably good position, the typhoid rate in this city for 1917 contrasting very sharply with that for the preceding ten years. New Bedford and Lowell also make a good showing. Salt Lake City for some reason records a relatively high rate, while, on the other hand, Nashville reports typhoid figures that are most encouraging and that mark the beginning of a new period in the sanitary history of that city. Nashville passes for the first time into the rank of cities with a typhoid rate less than 20. Those familiar with Nashville conditions in the past will realize the amount of vigilance and unremitting labor necessary to bring about this result. As the work of establishing sewer connections in that city progresses, further improvement in the typhoid rate may be expected.

Dayton seems to have a relatively high rate for a Northern city, and does not show as marked improvement in the past two years as do some other cities in this group. A careful study of typhoid in Dayton in 1917 was made by the health commissioner, the study apparently indicating that the lack of sewer connections has a good deal to do with the occurrence of typhoid in that town.

TABLE 8.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1917)

	Total Population (57 Cities)* Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,996,035	4,114	19.59
1911	21,545,014	3,391	15.74
1912	22,093,993	2,775	12.56
1913	22,642,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915	23,740,930	2,068	8.71
1916	24,205,359	1,842	7.61
1917	24,740,068	1,647	6.65

* Three cities are omitted from this summary because data for the full period are not available.

In 1917, thirty-one cities had a lower typhoid rate than in 1916; twenty-nine a higher. Thirty-seven cities had a typhoid rate under 10, as compared with thirty-five in 1916 and thirty-two in 1915. Fourteen cities had a death rate from typhoid fever under 5 in 1917, as compared with sixteen in 1916. In 1917, five cities reached a rate below 3. These are Chicago, Oakland, St. Paul, Tacoma and Boston.

Perhaps the most encouraging changes in our tabulation consist in the lowering of the total typhoid rate from 7.61 in 1916 to 6.65 in 1917 (Table 8), and in the fact that only four cities — all of them in the South — are left in the fourth rank (typhoid rates over 20). Three years ago (1914) there were thirteen cities in this rank. Only four cities were in the first rank three years ago, as compared with the present number of fourteen in 1917. The greatest improvement in rank in 1917 as compared with the preceding year seems to be made by Toledo, Richmond and Camden, each of these cities advancing two ranks: Toledo, from fourth to second; Richmond, from fourth to second, and Camden, from third to first.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ARSENOBENZOL (Dermatological Research Laboratories).—A brand of arsphenamine (see New and Nonofficial Remedies, 1918, p. 44).

Manufactured by the Dermatological Research Laboratories, Philadelphia Polyclinic, Philadelphia, Pa., under U. S. patent Nos. 986,148 (March 7, 1911; expires 1928), 1,081,897 (Dec. 16, 1913; expires 1930), 1,081,591 (Dec. 16, 1913; expires 1930), and 1,116,398 (Nov. 10, 1914; expires 1931) by license of the U. S. Federal Trade Commission.

The following dosage form has been accepted:

Arsenobenzol (Dermatological Research Laboratories) 1 Gm. Ampules.—Each hermetically sealed ampule contains arsenobenzol (Dermatological Research Laboratories) 1 Gm. Prepared for use in hospitals in divided doses.

HALAZONE. — Parasulphonedichloramidobenzoic acid. — $C_6H_4(SO_2NCl_2)COOH$—1 : 4.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 159.

Halazone-Monsanto.—A brand of halazone complying with the N. N. R. standards.

Manufactured by the Monsanto Chemical Works, St. Louis. No U. S. patent or trademark.

PROCAINE.—$CH_2(C_6H_4.NH_2.COO).[N(C_2H_5)_2].CHl$. The monohydrochloride of para-aminobenzoyldiethyl-amino-ethanol.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 32.

Procaine-Abbott.—A brand of procaine complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 812,554 (Feb. 13, *1906*; expires 1923) by license of the U. S. Federal Trade Commission.

Lead and the Birth Rate.—Lead poisoning has a *malign* effect on the birth rate and infant mortality. The effect on the developing embryo is particularly disastrous. Adami tabulates 88 pregnancies in women with lead poisoning that resulted as follows: abortions, premature labor and stillbirths, 71; *infants* born living, 17, five of which died within one year.—H. G. Palmer, M.D., *Bulletin*, R. I. Board of Health.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, MARCH 16, 1918

TYPHOID IN AMERICAN CITIES

In this issue[1] is the sixth annual summary of typhoid death rates in American cities of over 100,000 inhabitants. It need hardly be said that absolute accuracy is not claimed for these figures. Clerical errors are occasionally made in reporting figures to us and exact verification is naturally impossible. It is evident, too, that the usage in reporting typhoid deaths varies somewhat in different communities so that the recorded death rates are in some instances not strictly comparable. One source of error and misapprehension to which reference has been specifically made (see footnote, page 777) is the inclusion of deaths of non-residents occurring in city hospitals along with the deaths properly attributed to the city's own population. This procedure naturally tends to exaggerate city typhoid rates generally as compared with the rates in the neighboring suburbs and rural communities. There is, however, no satisfactory means of controlling data of this sort, and it is believed that the practice we have followed in this particular is in general not unfair, especially when the same method is observed consistently through a series of years. It must be remembered also that if non-resident deaths were eliminated from the city figures in each case, it would still not be possible to include the deaths of residents occurring outside the city itself or the deaths due to infection contracted by non-residents within the city limits. In no case can it be maintained that exact accuracy is secured, and the figures that we employ can be regarded as only an approximation.

Making all reservations as to the precision and completeness of the statistical data furnished us, it may be considered that these typhoid summaries have a definite value. It may be true that the relative differences in the typhoid death rates of cities with rates under 5.0 per 100,000 are not specially significant, but there can be little doubt that the difference between those with rates under 5.0 and those with rates over 15.0 is significant and should be taken into account by public health authorities. There is reason to believe, also, that the annual typhoid summaries printed by The Journal have had a real influence in stimulating local interest in the typhoid situation, and in a number of instances in causing methods of sanitary reform to be set on foot. The Journal has received so many communications to this effect that there is no escape from the conclusion that these annual summaries have been useful to members of the profession and to health officials in many places.

It is of great interest to note the remarkable decline in the total average typhoid rate that has occurred in the large cities of this country since 1910. Whatever be the statistical objections in regard to accepting the figures on their face value, it can hardly be questioned that a very great improvement has taken place in the typhoid situation in this country since the publication of these annual summaries was first begun. The 1917 typhoid death rate in a population of approximately 25,000,000 will bear comparison with the rate in a similar population anywhere in the world. The health officials of American cities deserve great credit for this improvement which has, to a large extent, freed sanitary science in this country from the reproach of excessively high city typhoid.

---

[1] Page 777.

CREATININ AND CREATIN IN THE BLOOD

The more recent quantitative microchemical studies of the blood have indicated that among the nonprotein nitrogenous constituents the estimation of creatinin is likely to be of especial service from a diagnostic and prognostic standpoint. There are few, if any, normal nitrogenous components of the urine for which the kidneys are more permeable; so that when creatinin begins to accumulate in undue proportions in the circulating blood, there can be little question as to the seriousness of the finding.

But what constitutes an abnormally high content of creatinin in the blood? Folin and Denis placed the normal limits at from 1 to 1.4 mg. per hundred c.c.; according to Myers and Fine, who have accumulated exceptionally extensive statistics on this question, the range is set at from 1 to 2 mg. Other investigators have been in essential accord with such figures. Only Gettler and Baker[1] indicate 0.5 mg. as the upper limit of normality; and they have reported many specimens of normal blood to contain as little as 0.1 mg. The problem of establishing definitely a standard of composition is further complicated by the fact that creatinin has been demonstrated to occur in the corpuscles as well as in the plasma. Obviously only the plasma component can be concerned directly in the passage of creatinin in or out of the circulation. As a recent writer has expressed it, the accumulation of creatinin in the blood has shown itself to be a useful index of renal insufficiency; but we are as yet unaware whether the excess present in the circulation of a nephritic permeates all the elements of the blood, or accumulates in the plasma alone. If the latter alternative should prove to be correct, the variations of the plasma creatinin in kidney disease would be even more striking than those of the whole blood creatinin, and would form a still more delicate index of the organ's capacity to excrete. A separate study of plasma and whole blood creatinin and creatin in different pathologic conditions might even reveal significant variations in the permeability of the corpuscles for these substances.

---

[1] Gettler, A. O., and Baker, J.: Jour. Biol. Chem., 1916, 25, 211. Gettler, A. O.: Jour. Biol. Chem., 1917, 29, 47.

Thanks to the researches of Wilson and Plass,[2] of the Johns Hopkins Medical School, and more recently of Hunter and Campbell[3] at the University of Toronto, it seems conclusive now that in general the creatinin of normal human blood is distributed among its different elements at a practically uniform concentration. It is not confined more particularly to either plasma or corpuscles. The figures ascertained for the plasma indicate, therefore, also the true creatinin content of whole blood. According to Hunter and Campbell, the creatinin content of normal human blood plasma ranges under different conditions from 0.7 to 1.3 mg. per hundred c.c., the average for sixty specimens examined being 1 mg. This is in substantial agreement with the figures of all the previous workers except Gettler, whose divergent results were reported above.

With respect to the content of creatin in the blood, the conditions are apparently unlike the equal distribution of creatinin. Hunter and Campbell believe that the creatin is chiefly concentrated in the corpuscles. With the method used, exact determinations were unattainable; but it is roughly estimated that the average creatin content of the corpuscles lies between 6 and 9 mg. per hundred c.c., while that of the plasma is not more than from 0.4 to 0.6. The blood as a whole contains apparently an average of about 3 mg. per hundred c.c. There seems to be more in the blood of females than of males. In other words, the corpuscles contain from five and a half to ten times as much creatin as creatinin, while in the plasma it is the latter that is predominant.

The Toronto investigators point out that the blood creatinin is apt to be lower in females than in males, and lower in subjects deprived of exercise than in those leading an active life. It is suggested that the blood creatinin is related to muscular development in much the same way as the creatinin coefficient of the urine. We have already discussed the peculiar occurrence and as yet unknown significance of creatin in the urine. Hunter and Campbell have found this substance present at times in the blood. They state that there is a distinct correspondence between increase of plasma creatin and the appearance of creatin in the urine; but whether the plasma, in the absence of creatinuria, is creatin free or whether there exists a threshold for creatin excretion has not been positively determined. If there is a threshold, it is a very low one.

MENINGOCOCCUS CARRIERS

There have been approximately 1,500 cases of meningitis since last summer among our troops assembled in the various Army encampments. This is a much higher rate of incidence than has existed in any civilian population of similar size in this country during this period. In Chicago during the whole year 1917 only 354 cases were reported, and this was an incidence three times as high as in 1916. Even if there were no European experience to guide us, therefore, we should have convincing evidence of the special prevalence of meningitis among the new recruits in military organizations.

Nearly all observers of the epidemiology of meningitis have laid great stress on the rôle of meningococcus carriers in spreading infection. The Journal has previously discussed various aspects of this question. Under the acid test of practical experience, new views about the significance of carriers and about the methods of practical procedure are finding expression. From the administrative standpoint probably the most important of these differences concerns the measures that should be taken for control in the Army organization. Two quite divergent opinions have found advocates: one, that it is desirable and practicable to examine all the troops in an encampment, to eliminate all or most of the carriers and thus stop or greatly limit the spread of infection; the other, that the search for carriers is of doubtful value, and if pushed to its logical conclusion would seriously cripple military efficiency. The latter view has been especially expressed as the result of experience at the Great Lakes Naval Training Station.[1]

The difference in these two views with their momentous practical corollaries is so great as to require serious consideration at this time. If it is true, to quote the report of Mink,[1] that "measures to control the disease through the carrier method are absolutely worthless," then preventive measures should be based on the elimination of predisposing causes rather than on sources of infection. No one questions the great influence of inadequate clothing, improper housing and possibly fatigue in increasing the susceptibility to cerebrospinal fever among troops; but there is abundant evidence that these are not the only factors that facilitate infection. It is a common

---

[2] Wilson, D. W., and Plass, E. D.: Jour. Biol. Chem., 1917, 29, 413.

[3] Hunter, A., and Campbell, W. R.: The Amount and the Distribution of Creatinine and Creatine in Normal Human Blood, Jour. Biol. Chem., 1918, 33, 169.

---

[1] Mink, O. J.: Points in the Epidemiology of Meningitis, abstr., The Journal A. M. A., Feb. 23, 1918, p. 563.

observation that within the same military organization certain units are stricken much more severely than others under substantially similar conditions of housing and weather. When meningitis is studied by the spot map method, definite foci of infection will often be distinguished, and these foci are at points where no material differences in predisposing influences can be detected. The explanation usually given for the development of these meningitis foci at certain points and not at others is that meningococcus carriers are particularly numerous or particularly dangerous at the affected localities. Many bacteriologic observations in this country and abroad support this view. It is rather suggestive that no specific interpretation of meningitis foci based on differences in the action of predisposing factors has been established. It is also true that so-called seasoning or hardening influences are not universally effective in modifying the occurrence of meningitis. Foster and Gaskell point out that the epidemic of meningitis among the British troops in the spring of 1915 occurred when the troops were living under conditions considerably better than in the preceding autumn, and when they had become more acclimatized to their new mode of life. The same observers draw attention to the fact that there is no direct connection between a severe winter and an outbreak of cerebrospinal fever, some of the most severe epidemics in England having occurred with a mild winter. Rolleston[2] also gives figures showing that there were more cases in the personnel of the British navy in the third year of the war (143) than in the second (104), although there were fewer in the second than in the first (170), and he adds that "the absolute rise of the naval cases during the third year of the war corresponds with a rise in the number of cases in the civil and military population, and also with an increased percentage of carriers in the navy." Perhaps the most significant fact of all, however, is the one to which we have already referred, namely, the very definite localization of meningitis cases in army camps on some basis other than that of predisposing factors. Without underestimating in any degree the importance of predisposing influences in this infection, we are forced to regard them as only one element in the situation. Causes that affect individual susceptibility cannot be ignored in the practical control of meningitis; but we are not justified on that account in neglecting other measures of combating meningitis dissemination.

Probably the real issue is not so much the importance of meningococcus carriers as the practicability of segregating carriers while at the same time maintaining a reasonable degree of military efficiency. It will be generally admitted that more specific evidence is needed respecting the results actually accomplished by meningococcus carrier work in the Army camps. At the same time some of the criticisms of the effectiveness of this work are themselves of questionable cogency. In making comparisons of carrier conditions, the number of carriers in a unit is only one factor; we should also know the proportion of chronic carriers (probably the more dangerous type), the proportion of new recruits in the units that are compared, and the possible influence of overcrowding and other living conditions, as well as the period of time over which observations extend. It must not be forgotten that the examination of healthy persons in a locality where meningitis does not prevail and there is no obvious association with cases of the disease has shown the relative absence of carriers. One obvious difficulty in the way of satisfactory comparison is the evaluation of the relative efficiency of the methods of meningococcus isolation and identification in the hands of different investigators. The use of fairly uniform methods embodying the results of the latest experiences in this field would be a step in advance.

Respecting the feasibility of making meningococcus carrier examinations and utilizing the results under military conditions, we have quite a body of experience to draw on. It is rarely, if ever, that the examination of a large body of troops — say a division — will justify itself on grounds either of adaptation to the military situation or of control of epidemic spread. It is never possible to obtain absolute segregation of the military population from the surrounding civilians, or of the various units of the military group one from the other. The result is that new carriers are being more or less steadily created or introduced while the work is going on. The labors of Sisyphus were small in comparison with the attempt to find and segregate all the meningococcus carriers in an assemblage of 35,000 men.

It seems probable that the most useful practical procedure lies somewhere between the extremes of universal nasopharyngeal examination and no examination at all. If those soldiers who have been in close association with the one attacked by meningitis are examined, it is often found that one and possibly more of these "healthy contacts" is a carrier of large numbers of meningococci. Authenticated instances have been recorded in which the isolation of such a carrier has been followed by the cessation of meningitis in his organization. The inference also seems warranted that the failure to remove such a carrier early in his career is responsible for the development of the striking and characteristic meningitis foci already mentioned.

From the army standpoint it seems likely that the procedure here indicated can be carried out without undue interference with essential military needs. Prompt segregation of ten or twenty or more immediate contacts until the bacterial results are obtainable

---

[2] Rolleston, H. D.: Cerebrospinal Fever in the Royal Navy, Lancet, London, 1918, 1, 87.

— say for a period of forty-eight hours — and isolation of the carriers found, only one or two of whom may prove to be chronic carriers, are not measures likely to produce serious disorganization of the camp activities. There is reason to believe that they will aid materially in preventing the development of meningitis foci. It goes without saying that there are military situations, as at an embarkation port, where even this measure of control can hardly be carried out. It will also be granted that a more comprehensive examination would show the presence of meningococcus carriers in troop units in which no case of meningitis had developed and did not develop through a long period of observation. Such carriers, however, evidently do not possess the urgent practical importance attaching to those carriers in the immediate vicinity of a case of meningitis. In a word, the prevention of the formation of meningitis foci would seem the most reasonable point of attack. Isolated or so-called sporadic cases of meningitis will always be likely to occur among new Army recruits and will often be very difficult or impossible to connect with any other center of infection. But careful inquiry will doubtless show that even in such cases a connection can be traced more frequently among soldiers whose movements can be fairly definitely ascertained than among members of the civilian population.

On the whole, the position that seems most clearly justified at the present time is not to abandon the examinations for meningococcus carriers, but to make such examinations on a reasonable scale under all conditions in which military exigencies do not forbid. To obtain the best results the examination should be made as soon as possible after the existence of a meningitis case is suspected, and the laboratory methods used should be rapid and precise. The available evidence indicates that such a procedure is valuable in checking the spread of meningitis. The success of preventive measures in any disease is beset with some degree of uncertainty. The fact that we cannot assert in any particular instance how many cases of meningitis have been prevented is no argument against the judicious application of meningococcus carrier control.

Delayed Reaction Time as a Cause of Aero Accidents.—The pupil may misjudge distances, and on examination one occasionally finds that his standard of vision is below normal; but, on the other hand, he may be found physically fit, with normal vision and good balancing power. In the latter cases it may be a question of delayed reaction time, especially the visual reaction time on which the aviator is so much dependent. Normally this reaction time takes 19/100 or 20/100 of a second. It may be delayed by fatigue, drugs and excesses, but, on the other hand, in some individuals, who are otherwise physically fit, it is found to be much slower than in others. Hence, in the selection of candidates for aviation, the visual and other reaction times must be up to the normal standard. By the French medical authorities on aviation candidates are rejected if the reaction times are found to be of the delayed type.—H. Graeme Anderson, Surgeon, R. N. Air Service, *Brit. Med. Jour.*, 1913, **1,** 73.

Current Comment

THE ARMY MEDICAL DEPARTMENT ENCOURAGING A FALLACY

The drug supplies that are being purchased by the medical department of the United States Army are commendably free from unscientific and worthless proprietary preparations. This is progress. One's optimism, however, is tempered in looking through a long list of drugs and chemicals on which bids are asked by the General Purchasing Office of the Medical Department, U. S. A. Item No. 148 of "Post Supplies" calls for three tons (in one pound bottles) of the "Compound Syrup of Hypophosphites"! It is safe to say that there is not a physician in one of the army posts who, if the question were put to him frankly, would admit that "Compound Syrup of Hypophosphites" belonged in the armamentarium of a scientific physician. Yet, six thousand bottles of this relic of a past generation are called for, are to be paid for and are to occupy valuable freight space in shipping to the various army posts. What utter waste! And what a reflection!!

MUNICIPAL SUPPORT OF HOSPITALS AND OF MEDICAL SCHOOLS

Like other large cities, Cincinnati has a large general hospital erected and maintained by the municipality. But it has, what no other city has, a municipally supported medical school — the medical department of the University of Cincinnati, which is supported by a municipal tax. Because of their joint municipal support, the recent development in both medical school and hospital has attracted considerable attention. Since 1914, a group of new hospital buildings, which provides for 850 beds, has been erected at a total cost of approximately $4,000,000. The new city charter, adopted recently,[1] places the control of this and the other hospitals of Cincinnati under the board of directors of the University of Cincinnati, and provides that the heads of the departments of the medical schools shall constitute the attending staff of the hospital. A school of nursing and health has also been provided for under the charge of the medical school. The new charter, therefore, not only provides the medical school with an abundance of clinical material, but also makes it possible for the university to provide the hospital with an attending staff that is entirely removed from politics. The medical school also in recent years has been undergoing considerable improvement. In the last eight years, in addition to the income from the university and from students' fees, the medical school has received over a million dollars in gifts from citizens of Cincinnati. Of this sum, about $600,000 has been expended in the erection and equipment of a new medical school building, which, as noted in our new columns last week,[2] has just been dedicated. This new building has been erected on property immediately adjoining the Cincinnati General Hospital which is in keeping with the closer relationship that has been established between the hospital and the medical school. Thus municipal responsibility for both medical school and hospital in Cincinnati has brought a relationship by which both may reach the highest stage of efficiency. This represents what should be done in other cities, where too often the splendid material available in large municipal or county hospitals cannot be or is not utilized, owing to a separate control over hospital and medical school, which is often made worse by a political favoritism by which the attending staff may be selected. It is only by the closest possible relationship that both medical school and hospital will be able completely to fulfil their functions and best serve the public. The medical school needs for teaching purposes the clinical material available in the hospital, and, on the other hand, the hospital needs what a high grade medical school is in position to supply, namely, an attending staff composed of high grade and progressive medical men who are not only imbued with the spirit of research, but who are also in touch with the latest and best methods of diagnosis and treatment, which they are in position to utilize in the care of the hospital patients. The service of our large city hospitals to the public will be greatly increased by a closer working relationship with high grade medical schools.

---

[1] Closer Relationship Between the [illegible]niversity of Cincinnati and the Cincinnati General Hospital, T [illegible] A. M. A., [illegible] 9, 1918, p. 411.

PURINS IN COW'S MILK

Ever since purin-free foods have found an application in dietotherapy, milk has been classed among the products that belong in this category, despite the fact that Burian and Schur long ago asserted that it contains small quantities of purin compounds. Voegtlin and Sherwin[3] of the Hygienic Laboratory of the United States Public Health Service have now actually isolated two well recognized purins in sufficient amounts to be able to identify them. They found that cow's milk contains at least 5 mg. of adenin and 10 mg. of guanin per liter (quart). It is obvious, of course, that such quantities can play only an insignificant part as sources of the so-called endogenous uric acid, usually amounting in adults to more than 300 mg. per day that is secreted in the urine. Hence for the purposes of the purin-free dietary, milk, in the quantities ordinarily consumed, may still be classed along with eggs, certain cereals, fruits and vegetables, as practically purin-free. Why adenin and guanin appear at all in the secretion of the mammary gland remains an interesting speculation. Either they are derived from the blood stream and excreted analogously to the urinary purin compounds, or they may be formed incident to the nuclear metabolism of the cells that are engaged in the manufacture of the milk solids.

Medical Mobilization and the War

New Commandant for Medical Officers' Training Camp

Brig.-Gen. Henry P. Birmingham, M. C., N. A., has bee relieved from duty in the office of the Surgeon-General the Army and directed to proceed to Fort Riley, Kan., inspect the Medical Officers' Training Camp at that pos On completion of this duty he is to proceed to Fort Ogl thorpe, Ga., for duty as commandant of the Medical Officer Training Camp at Camp Greenleaf.

Revision of Manual of Instructions for Medical Advi[illegible]y Boards

As we go [illegible] press it is announced that a medical boa consisting of [illegible]rig.-Gen. Charles Richard, M. C., N. A., a Major Frank Billings, M. R. C., has been appointed revise the M[illegible]nual of Instructions for Medical Adviso Boards working under the Selective Service Law. It understood that the revision will be extensive and that t manual will b considerably abbreviated. The present manu as our readers know, represents the work of a large boa representing various specialties, together with representativ from the Medical Corps.

results of the [illegible]
[illegible]d be a step in advance.
[illegible]f making meningococcus
[illegible]lizing the results under
quite a body of experi-
if ever, that the exam-
[illegible]ops — say a division —
either of adaptation to
[illegible]rol

PERSONNE[illegible] OF T[illegible]

For the wee[illegible] [illegible]nding Mar[illegible] Department of [illegible] Army i[illegible]

MEDICAL C[illegible]S: 796 [illegible] lieutenant-colonels, 177 maj[illegible]

MEDICAL RESERVE C[illegible] captains and 12,522 lieute[illegible]s. [illegible] majors, 3,492 captains and [illegible]

MEDICAL CORPS, NATI[illegible] tenant-colonels, 257 ma[illegible]

MEDICAL CORPS, [illegible] ARMY: 70, including 24 [illegible] generals, 12 colonels, [illegible] lieutenant-colonels and 5 majors.

The DENTAL COR[illegible]; DENTAL RESERVE CORPS, 5,[illegible] of whom 1,334 are o[illegible]e duty; DENTAL CORPS NATION GUARD, 260; VETER[illegible]RY CORPS, 24; VETERINARY RESER CORPS, 1,400, of w[illegible]m 781 are on active duty; VETERINA CORPS NATIONAL GUARD, 57; VETERINARY CORPS N TIONAL ARMY, 294; SANITARY CORPS, 940, and AMBULAN SERVICE, 138, constitute the remainder of the commissioned personn

Board Organized to Standardize [illegible] the Care of Remediable Defect[illegible]s

The following named officers have be[illegible]en constituted a board to standardize the management of sol[illegible]diers with remediable defects and of those with defects not re[illegible]mediable which do not prevent the performance of some milit[illegible]ary duty; this is [illegible] accordance with the provisions of the [illegible] regulations under Selective Service Law: Cols. G. E. [illegible] Bushnell, U. S. Ar[illegible] retired; F. F. Russell, M. C., U. S. A[illegible]rmy; W. H. [illegible] M. C., N. A.; Lieuts.-Cols. T. L. Rhoad[illegible], M. C., U. S. A[illegible] P. W. Huntington, M. C., U. S. Army; E. G. Brackett, M[illegible] N. A.; W. R. Parker, M. C., N. A.; W. T. L[illegible] N. A., and P. Bailey, M. C., N. A.; M[illegible] M. R. C.; H. P. Mosher, M. R. C., W. H. G. L[illegible] M. R. C. [illegible] J. C. Bloodgood, M. R. C.; C. H. Mayo[illegible] Harris, M. R. C.; Contract Surgs. F. R. [illegible] Wende, alternating. This board is in grea[illegible] that which prepared the "Manual of Inst[illegible] ical Advisory Boards." There were twelve [illegible] mer board; there are seventeen on the pre[illegible]

Vacancies in the United States Public He[illegible]

Owing to greatly increased activities in the [illegible] Service, there is urgent need of the services of m[illegible] for field duty in connection with the sanitation [illegible] civil sanitary districts. The salaries of the [illegible] question vary from $1,800 to $2,500 per annum[illegible] on the qualifications and experience of the appoi[illegible] who have been disqualified physically for th[illegible] Reserve Corps are eligible for appointment, pr[illegible] are not suffering from complaints which will seri[illegible] fere with the performance of their duties. It is especially desired to secure the services of competent sanitarians and those who have had previous experience in health work. There are also numerous vacancies for sanitary engineers, scientific assistants, sanitary inspectors, and others. Applications for appointment to these vacancies should be made to the Surgeon-General, U. S. Public Health Service, Washington, D. C., and in order to avoid unnecessary correspondence should include complete data concerning age, nativity, experience and training, and other necessary information.

---

[2] The Journal A. M. A., March 9, 1918, p. 712.

[3] Voegtlin, C., and Sherwin, C. P.: Adenine and Guanine in Cow's Milk, Jour. Biol. Chem., 1918, 33, 145.

Navy Medical Notes

Surg.-Gen. William C. Braisted, U. S. Navy, is planning to have available the medical personnel and supplies which will be made necessary by the probable passage of legislation authorizing the addition of 50,000 enlisted men to the Navy and Marine Corps.

The new hospital ships *Mercy* and *Comfort* accommodating 400 patients each, will soon be ready for active service. Surg. Charles M. Oman has been selected as commander of the *Comfort;* no commander has as yet been selected for the *Mercy.* These ships, together with the U. S. S. *Solace,* now in service, gives the Navy Department three hospital ships.

Med. Insp. J. A. Murphy, of the Surgeon-General's Office, spent several days last week studying the needs for hospital expansion at the Philadelphia Navy Yard.

Dr. William[illegible] Navy has been promoted to be
occur among new Army re[illegible] B. Trible to be surgeon
er.
very difficult or impossible to [illegible] announced: Medical
center of infection. But car[illegible] be a m[illegible]ical director
less show that even in such c[illegible] spector[illegible] be medical
rthur [illegible] Dunbar and
traced more frequently amo[illegible] be medical inspectors
h C. Thompson, Karl
ments can be fairly definitely; [illegible] the same capacity for
members of the civilian pop[illegible] ly, Albert J. Geiger,
Grieve and John D.
On the whole the positio[illegible] be surgeons with
rank of lieutenant-comma[illegible] William H. Short,
Herbert L. Kelley and Julian T. Mil[illegible]

Changes in Manual of Instructions for Medical Advisory Boards

The War Department has authorized a statement to the effect that through an inadvertence there appeared in the manual of instructions from the office of the Provost-Marshal-
neral, for medical advisory boards, the following para-
ph, page 92:

> ne foreign born, and especially Jews, are more apt to malinger
> the native born.

ne attention of the President and Acting Secretary of
having been called to it, the President under date of
n 4, wrote the following letter to the Acting Secretary
r:

> very much distressed that the sentence quoted in the inclosed
> should have been contained in the draft instructions to the
> visory boards. They, of course, represent a view absolutely
> that of the administration, and express a prejudice which
> r to have been expressed or entertained. In all of this I
> u will be kind enough to make an immediate excision of
> nces and instruct the medical advisory boards accordingly,
> known, if you will be kind enough, to the senders of the
> egrams that you have done so.
> king this request with all the greater confidence because I
> u will sympathize with my point of view in the matter.
> and sincerely yours,
> Woodrow Wilson.

owell, Acting Secretary of War in the absence of
Baker, responded to the effect that an amendment
ragraph has been submitted by the Surgeon-General
graphed to all the boards. A new reprint of the
ns will be distributed as soon as received from the
nent Printing Office, and the edition already distributed
recalled and destroyed.

new paragraph reads:

> CASES WHERE MALINGERING IS SUSPECTED
>
> s of malingering are to be detected by positive conclusions
> ng from careful examination of claimed defects and ailments.
> isions based on suspicion engendered by the circumstances or
> nment of the registrant may result in grave injustice. All suspected cases are to be subjected to such tests as are herein prescribed or to other tests that may be devised by the examiner. The statements of registrants concerning their physical condition should be patiently considered in the same manner applied to other statements affecting his liability to military service, and where fraud or deception is suspected, the statements should be subjected to careful cross-examination and considered in the light of all other evidence obtainable. If investigation of doubtful statements is desired the board may call upon the local authorities of the selective service system for investigation and report.

NEWS OF THE CANTONMENTS

March 3, 1918.

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Surgeons of the ambulance companies of the Twenty-Eighth Division have entered a course in dissection at the University of Georgia Medical School, Augusta.

Lieutenant Wadhams, M. C., of Maine, One Hundred and Ninth Field Artillery, is now acting assistant division surgeon in Lieut.-Col. William Crookston's office, and Major Dillinger is division sanitary inspector.

All men of the division will be required to exhibit their qualifications in first aid work.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 11, 1918.

ORGANIZATION CHANGES

Changes in the organization of Camp Zachary Taylor are being made. The camp is larger than the division, there being a number of organizations here which do not belong to the Eighty-Fourth Division, among them being the base hospital, Seventeenth Brigade of regulars, camp quartermaster department, school for cooks and bakers, and training school for officers. Major-Gen. Harry C. Hale being the senior officer is in command of the entire camp. The first intimation that two separate organizations were planned was the naming of Lieut.-Col. John H. Allen, former division surgeon, as camp surgeon; the naming of Lieut.-Col. William E. Smart as division surgeon, and detaching Major Luther Poust as division sanitary officer and naming him camp sanitary officer and assistant camp surgeon under Colonel Allen. Capt. Alfred M. Allen has been named as camp adjutant.

TENTS FOR MEDICAL OFFICERS

Tents, which have not been used since the First Kentucky Regiment left, will again be pitched to house medical officers detailed to the base hospital. Between 50 and 100 graduates from Army medical training schools are expected to report at the base hospital in the near future. Congested condition of the officers' quarters necessitates this action. Carpenters have begun the additions to the officers' quarters, but these will not be completed in time to receive the new arrivals.

A prisoners' ward is to be erected at the base hospital group at an estimated cost of $5,000. Sick soldiers who are military prisoners will be treated there.

Fifteen Red Cross nurses arrived at the hospital on the fifth instant.

Hospital Unit No. 40 has been mobilized at Camp Zachary Taylor. This unit is under the command of Major David Barrow of Lexington, who is chief surgeon, and Major McClymonds, chief internist. The enlisted personnel is under the command of Capt. Virgil Simpson, M. R. C., of Louisville.

INSPECTIONS

Inspections at the base hospital are part of the regular routine now. They occur several times a day by line officers and no one knows what phase the next one will take. General Hale, the commanding general, visited the hospital unexpectedly last week and questioned many men regarding their care, comfort and food. The result of all of this is to keep the medical officers in a turmoil all the time, they are literally "up on their toes" and in all departments there is a feeling of unrest which will undoubtedly be detrimental to the morale of the organization if this form of inspection is continued.

PERSONAL

The trial of Major Milton Board, M. R. C., before a special court martial under charges of violation of the eighty-fifth article of war, proceeds slowly. Only five of the many witnesses called had been examined on adjournment of the court on March 9. Much comment was caused by a ruling of Colonel Guthrie, president of the court, that reporters were not to publish anything until the reports had been censored. The matter was laid before General Hale, division commander, who reversed Colonel Guthrie and allowed fullest publicity to the press reports of the trial.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 1, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):
   - All Troops 1,372.2
   - National Guard Camps 1,101.7
   - National Army Camps 1,557.1
   - Regular Army 1,334.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:
   - All Troops 47.8
   - National Guard Camps 42.2
   - National Army Camps 54.5
   - Regular Army 42.9
3. ANNUAL DEATH RATE PER 1,000:
   - All Troops 6.6
   - National Guard Camps 6.4
   - National Army Camps 5.9
   - Regular Army 7.9

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 1, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth	7	..	..	15	4	1	...	2	591.8	23.6
Hancock	6	..	..	23	10	6	3	2	432.2	26.9
McClellan	5	..	..	18	10	..	2	1	743.8	28.7
Sevier	...	..	2	22	2	..	1	3	1,670.1	70.0
Wheeler	9	1	3	45	2	..	...	6	1,360.6	46.6
Logan	8	..	..	70	32	..	2	2	1,127.2	34.6
Cody	30	..	..	7	...	1	...	2	634.8	37.5
Doniphan	14	..	1	8	...	..	3	8	1,772.2	47.6
Bowie	27	..	..	74	3	2	1	3	2,058.2	61.0
Sheridan	2	..	..	19	3	1	3	0	443.1	21.8
Shelby	2	..	1	29	...	..	...	2	1,252.0	54.2
Beauregard	26	..	2	16	...	2	...	7	1,318.1	55.4
Kearny	...	..	..	6	1	..	4	4	1,181.3	47.1
Devens	9	..	..	68	6	..	3	5	1,077.5	36.4
Upton	7	..	..	21	...	..	...	4	575.4	23.4
Dix	1	..	..	64	11	..	9	1	1,560.9	44.7
Meade	9	..	..	19	15	..	6	1	508.6	30.9
Lee	14	..	..	49	10	2	...	4	1,474.3	58.0
Jackson	5	..	..	29	7	..	4	4	1,794.0	71.4
Gordon	1	..	..	118	1	..	...	3	1,333.7	34.9
Sherman	10	..	..	31	35	..	27	3	1,934.7	61.8
Taylor	11	..	..	48	13	1	2	5	1,612.0	60.6
Custer	5	..	..	6	9	..	6	2	1,171.4	46.0
Grant	7	1	..	10	12	..	9	3	919.3	31.3
Pike	15	1	..	138	17	2	9	3	3,050.9	95.6
Dodge	8	..	..	111	54	1	11	2	1,577.3	54.4
Funston	7	..	..	58	...	3	2	3	2,081.7	97.3
Travis	33	1	..	66	26	..	...	8	3,031.8	72.3
Lewis	3	..	..	31	52	2	37	0	1,404.0	65.8
N. E. Department	...	..	..	13	1	..	...	0	984.8	31.9
Eastern Dept.	11	..	2	16	10	1	2	1	681.6	27.0
S. E. Department	4	1	..	29	13	1	6	5	1,456.7	46.7
Southern Dept.	22	1	..	85	84	3	4	11	1,111.8	43.2
Central Dept.	4	..	..	31	10	2	9	1	1,499.6	47.8
Western Dept.	12	..	..	39	42	..	8	7	986.5	31.5
Aviation, S. C.	41	..	3	125	146	3	29	19	1,680.8	44.9
Camp Greene	11	..	..	17	13	1	...	1	980.0	39.8
Camp Fremont	4	..	1	26	3	..	...	0	1,304.7	45.5
El Paso	...	..	..	5	3	..	...	0	847.1	4.6
Fort Slocum	1	..	..	12	4	..	1	2	1,762.2	39.2
Columbus Bks.	2	..	..	13	...	..	2	0	1,970.5	60.5
Fort Thomas	...	..	..	6	...	1	...	4	1,634.3	77.6
Jefferson Bks.	4	..	..	7	14	..	6	0	2,025.2	127.1
Fort Logan	5	..	..	2	7	..	3	0	2,249.3	74.9
Fort McDowell	...	..	..	2	6	..	1	0	1,698.6	52.0
D. B. Fort Leavenworth	...	..	..	1	...	..	...	0	1,368.4	30.5
D. B. Alcatraz	...	..	..	....	...	..	...	0	656.1	15.7
Aberdeen P. G.	...	..	..	....	1	..	...	0	2,451.0	54.0
Allentown, A.C.C.	7	..	..	1	2	..	...	0	1,516.6	33.2
Camp Humphreys	...	..	..	11	...	..	...	0	1,858.5	18.9
J. E. Johnston	1	..	..	25	17	..	1	0	913.3	32.0
Camp Meigs	2	..	..	11	7	..	1	0	2,648.6	35.5
Camp Merritt	17	..	..	20	5	..	37	4	1,526.4	62.2
Camp Stuart	19	..	..	9	8	1	1	5	1,754.1	53.7
West Point, N. Y.	...	..	..	....	19	..	...	0	1,052.0	20.2
N. G. Depts.	1	..	..	16	24	..	4	2		
N. A. Depts.	15	..	1	136	46	..	25	2		
Total	464	6	16	2,202	820	37	284	157	1,372.2	47.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Mar. 1, 1918	Regulars in U. S., Week Ending Mar. 1, 1918	National Guard, All Camps, Week Ending Mar. 1, 1918	National Army, All Camps, Week Ending Mar. 1, 1918	Expeditionary Forces, Week Ending Feb. 21, 1918
Pneumonia	19.7	22.0	20.6	16.8	21.3
Dysentery	0.2	0.2	0.1	0.3	0.4
Malaria	0.5	0.8	1.3	0.0	0.4
Venereal	97.1	121.5	53.4	100.6	55.3
Paratyphoid	0.0	0.0	0.0	0.0	0.0
Typhoid	0.2	0.6	0.0	0.1	0.0
Measles	34.7	54.7	10.2	37.1	26.9
Meningitis	1.5	1.7	1.9	1.3	6.0
Scarlet fever	12.0	14.6	2.9	14.5	10.5

PROMOTIONS

Captains of the Medical Reserve Corps Recommended for Promotion as *Majors, from Jan. 7-Feb. 10, 1918*

JOS. W. BAUMAN, Lansdale, Pa.; SHADWORTH OLDHAM BEASLEY, San Francisco, Calif.; SIDNEY R. BURNAP, New York City; JOSEPH C. BREITLING, San Antonio, Tex.; CHAS. SUMNER CHRISTIE, Riverpoint, R. I.; EDGAR B. FRIEDENWALD, Baltimore, Md.; JOHN VINCENT LITTIG, Davenport, Ia.; JOHN HANCOCK McCLELLAN, Chicago; ELI B. MOSS, Chicago; GEO. ALLEY RENN, Norfolk, Va.; JAMES T. RUGH, Philadelphia, Pa.; FREDERICK WM. SHAW, Mt. Vernon, Mo.; EDWARD D. SINKS, Lima, Ohio; ROBERT L. I. SMITH, Pasadena Calif.; MARTIN J. SYNNOTT Montclair, N. J.; and DAYTON CARROLL WIGGIN, Rosebank, Staten Island.

First Lieutenants of the Medical Reserve Corps Recommended for Promotion as Majors, *from Jan. 26-Feb. 2, 1918*

WM. GRANVILLE BAIRD, Oak Hill, Okla.; ALFRED J. BROWN, New York City; and JAMES SPROAT GREEN, Elizabeth, N. J.

First Lieutenants of the Medical Reserve Corps Recommended for Promotion as *Captains*, from Dec. 10, 1917-Feb. 9, 1918

HERMAN E. ALBRECHT, Philadelphia, Pa.; GERHARD A. BADING, Milwaukee, Wis.; WM. E. BAXTER, Topsfield, Mass.; HENRY SMITH BARTHOLOMEW, New York City; IRA BENNETT BARTLE, North Bend, Ore.; ANTHONY H. BENNEWITZ, Cicero, Ill.; PIERRE BERGERON, Manchester, N. H.; THOMAS B. BIRD, New Orleans, La.; FREDERICK WALLACE BLACK, Punxsutawney, Pa.; WALTER PARKS BLISS, New York City; RUDOLPH BLOOM, Washington, D. C.; DAVID OLIVER BRIDGFORTH, Forrest City, Ark.; WALLACE L. BRITT, Jackson, Miss.; RALPH EARLE BRODIE, Albion, N. Y.; BAIRD U. BROOKS, W. Durham, N. C.; ALFRED JOSEPH BUKA, Pittsburgh, Pa.; HENRY EDGAR BUNCH, Jr., Kennecott, Alaska; WM. JOHN BURDELL, Lugoff, S. C.; TULLIE VAN BOYD, E. St. Louis, Ill.; FREDERICK DEAN CARTWRIGHT, Bowling Green, Ky.; WM. EDWIN CHAPMAN, Leland, Ill.; GLENN LONG COAN, Wyandotte, Mich.; JAMES L .COBB, New York City; FRANK ALBERT DAVIS, Boston, Mass.; FREDERICK EARLE DIEMER, Hot Springs, Ark.; RICHARD B. DILLEHUNT, Portland, Ore.; ROLLAND B. DOIG, Schenectady, N. Y.; SAM WRIGHT DONALDSON, Maryville, Tenn.; RAFAEL GABRIEL DUFFICY, San Rafael, Calif.; DOYLE LEE EASTLAND, Waco, Texas; LANCELOT ELY, Somerville, N. J.; JESSE ETTELSON, New York City; MERTON ALMOND FARLOW, Melroy, Ind.; JESSE FRANKLIN GAMBLE, Houston, Texas; JULIAN E. GAMMON, Jacksonville, Fla.; EDGAR LORRINGTON GILCREEST, Gainesville, Texas; JOSEPH GIRSDANSKY, New York City; HUBERT GRIEGER, Englewood, Colo.; ORVILLE R. HAGEN, Patterson, N. J.; ARTHUR JOSEPH HALL, Washington, D. C.; CHARLES WESLEY HALL, Mt. Vernon, Ill.; WALTER E. HEMPSTEAD, Oregon City, Ore.; WALTER LOWNY HENDERSON, East McKeesport, Pa.; RALPH HENDRICKS, Spokane, Wash.; AUGUST G. HINRICHS, Pittston, Pa.; LOUIS HOUGH, Denver, Colo.; RAYMOND G. HUSSEY, Baltimore, Md.; SAMUEL JAFFE, Norristown, Pa.; JAMES CRAIK JANNEY, Boston, Mass.; CHAS. WORLEY JONES, Elma, Wash.; CLARENCE KENNETH JONES, Indianapolis, Ind.; MILTON B. KATZENSTEIN, Pittsburgh, Pa.; BENJAMIN W. KELLY, Aitkin, Minn.; JERE WILLIAMS KIRKPATRICK, Copenhagen, Tenn.; ROLLAN W. KRAFT, Ann Arbor, Mich.; E. GECONIA MAXWELL, Barden, Tenn.; EDWIN McKAY, Charleroi, Pa.; GEO. C. MILLER, Kansas City, Mo.; EVERETT HUMPHREY MORGAN, Gallipolis, Ohio; WM. ALEXANDER MORGAN, New York City; OTIS P. MORGANTHALER, Templeton, Iowa; HARRY THOS. MORTON, New York City; LEO C. MUNDY, Wilkes-Barre, Pa.; ARTHUR L. MUNGER, Sacramento, Calif.; WOODFIN GRADY PAGE, Dothan, Ala.; CHAS. B. PALMER, Phoenix, Ariz.; CHAS. ARTHUR PAUSON, San Francisco, Calif.; KENNETH ALLEN PHELPS, West Point, N. Y.; WM. SCOTT PIPER, Clearfield, Pa.; ROBERT B. PRATT, Bellefontaine, Ohio; ADDISON J. PROVOST, Oshkosh, Wis.; WM. ELKIN RAKEN, Philadelphia, Pa.; JAMES WM. ROBINSON, Pittsburgh, Pa.; ROY THOMAS RODAWAY, Chicago; BERTOLET PERRY ROSEN-

BERRY, Winona, Minn.; PAUL RICHARD EDDINS SHEPPARD, Terrell, Texas; CHAS. ANTHONY SQUIRES, Binghamton, N. Y.; WM. CLIFTON STIFF, Plymouth, Pa.; WAID JAMES STONE, San Rafael, Calif.; JEROME F. STRAUSS, Chicago; JOHN M. TRACY, Springfield, Mass.; CHAS. DAVID TREISTER, Cleveland, Ohio; DONALD V. TRUEBLOOD, Seattle, Wash.; JAMES F. WAGNER, Bristol, Pa.; THOMAS E. WALKER, Cleveland, Ohio; CHAS. LEONARD WEBER, Cairo, Ill.; B. F. WEEMS, Jr., New York City; ROY DELISLE WILSON, Houston, Texas; CARL H. WITHERELL, Augusta, Me., and CHAS. SIAS WRIGHT, Portland, Me.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Dix, Wrightstown, N. J., to make inspection and on completion *to his proper station,* Col. EDWARD L. MUNSON. As assistant to camp surgeon, from Camp Dix, Lieut. VAL EMILE MILTENBERGER.

To Camp Meade, Annapolis Junction, Md., to make inspection, *and on completion to his proper station,* Col. JOSEPH N. WHITE. For duty, from Fort Des Moines, Lieut.-Col. ERNEST G. BINGHAM. As assistant to camp surgeon, Major GUY L. QUALIS.

To Fort Oglethorpe to organize and inspect instruction in tuberculosis and cardiovascular examinations and on completion *to his proper station,* Col. GEORGE E. BUSHNELL; Lieut.-Col. WARFIELD T. LONGCOPE.

To New York City for duty and on completion *to his proper station,* from Philadelphia, Col. CARROLL D. BUCK. *To make inspection* of disinfecting plants and on completion *to his proper station,* Col. CLAUDE E. MORGAN. For investigation and on completion *to his proper station,* Lieut.-Col. EDWARD B. VEDDER.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, from Camp Logan, Lieut.-Col. SAMUEL S. CREIGHTON.

To Camp Gordon, Atlanta, Ga., for temporary duty, *from* Camp Greene, Lieut.-Col. CONDON C. McCORMACK.

To Cape May, N. J., Ordnance Proving Grounds and Gas Shell Proving Ground, Aberdeen, Md., and *Ordnance Filling Station,* Edgewood, Md., for inspection and on completion *to his proper station,* Lieut.-Col. FRANK W. WEED.

To Fort Des Moines, Ia., as commanding officer of base hospital, from Camp Dodge, Lieut-Col. ALEXANDER T. COOPER.

To Army Medical School for duty, from Rockefeller Institute, Major CLARENCE L. COLE, Lieut. ROYAL K. STACEY.

To Camp Greenleaf, Fort Oglethorpe, Ga., Evacuation Hospital, for temporary duty, from Camp Greenleaf, Majors WILLIAM H. ALLEN, WILLIAM D. HERBERT.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort *Benjamin Harrison,* Majors LEOPOLD MITCHELL, ALEXANDER W. WILLIAMS.

To Fort Riley, Evacuation Hospital, for temporary duty, from Fort Riley, *Majors* ROBERT H. DUENNER, SAMUEL J. TURNBULL.

To *Hoboken, N. J.,* for duty, from Cape May, Major JAMES S. FOX.

To Garden City, L. I., N. Y., as sanitary *inspector,* from Camp Jackson, Capt. WILLIAM C. RIDDLE.

To *Camp Lee,* Petersburg, Va., for duty, *from Fort Oglethorpe,* Lieut. CLAY R. MURRAY.

To Fort Sam Houston, Texas, department laboratory, from Fort Bliss, Lieut. JAMES S. SIMMONS.

The following officers of the Medical Reserve *Corps who* have passed the preliminary examination for appointment in the Medical Corps of the Army will proceed *to the Army Medical School for the* required *course* of instruction: Lieuts. PHILIP H. CLARKE, *JOHN* E. DWYER, Jr., BOWERS H. GROWT, CARL FREUND, EARLE K. HALLOCK, MICHAEL G. HEALY, LELAND O. W. MOORE, LUTHER R. MOORE, LESTER A. SMITH, WILLARD H. WATEROUS, RALPH G. WILLY; from Camp Bowie, Lieut. ROBERT S. CUNNINGHAM; from *Camp Dodge, Lieut. ARTHUR V. MURTHA; from* Camp Greene, Lieut. FRANCIS E. *WEATHERBY*; from Camp Jackson, Lieut. FLOYD C. *SHUGART*; from Camp McClellan, Lieut. ROBERT G. FULLER; *from* Camp *Sheridan, Lieut. CHARLES* L. MAXWELL; from Fort Clark, *Capt.* W. *AUDA* V. CASH, Lieut. RAWLEY W. WARD; from Fort *Riley,* Lieut. LEO C. DONNELLY; from Fort Sam Houston, Lieut. DONALD H. *PITTS*; from *New* York City, Lieuts. CLAYTON L. McCOY, CHARLES W. PEABODY; from *San Antonio,* Lieut. JAMES J. FITZGERALD.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School for instruction, Lieut. JOSEPH W. SPEARING, *Anniston.*

To Boston, Mass., Boston City Hospital, *for instruction,* and on completion *to Camp Devens,* base hospital, from Fort *Oglethorpe,* Lieut. MILES A. WATKINS, *Birmingham.*

To Camp Greene, Charlotte, N. C., *Camp Wadsworth,* Spartanburg, S. C., *Camp Sevier,* Greenville, S. C., for inspecting the base hospitals, and on completion *to his proper station,* Major SEALE HARRIS, Birmingham.

To *Camp MacArthur,* Waco, Texas, for duty, from Camp Beauregard, Lieut. JAMES H. PHILLIPS, Dora.

To Camp Sherman, Chillicothe, *Ohio,* for duty, from Fort Oglethorpe, Lieut. HIRAM O. BARKER, Cardiff.

To Fort Bayard, New Mexico, for duty, from Camp Hancock, Lieut. ERNEST A. MOORE, Coatopa.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Lieut. ERNEST C. HAGOOD, Springfield. For instruction, from duty as a private at Fort McPherson, Lieut. JOHN PRATHER, Scale.

Arizona

To Fort Riley for instruction, from Nogales, Ariz., Capt. CHARLES FORD, Nogales. For instruction, Lieut. JACOB PRITCHARD, Winslow.

Arkansas

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. LEE V. PARMLEY, Little Rock.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. WILBUR R. HARWELL, Osceola.

To Fort Oglethorpe for instruction, Lieut. NEWMAN B. BURCH, Colt. Hospital train, from Fort Riley, *Lieut. SHEROD A. DRENNEN,* Rush.

To Fort Riley for instruction, Lieut. WILLIAM J. KING, Branch.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. EDGAR L. LINDSEY, *Fort Smith; MATTHEW A. BISSELL, Texarkana.*

California

To Alcatraz, California, for temporary duty, from Camp Kearny, Lieut. FRED C. SHURTLEFF, Los Angeles.

To Army Medical School for instruction, Lieut. JOHN W. ROBINSON, Stockton.

To Camp Cody, Deming, N. M., *Camp Travis,* Fort Sam Houston, Texas, *Camp Beauregard,* Alexandria, La., for duty and on completion *to his proper station,* from Camp Kearny, Major PHILIP S. CHANCELLOR, Santa Barbara. *To Camp Cody,* base hospital, Lieut. GEORGE P. HALL, Sunnyvale.

To Camp Kearny, Linda Vista, Calif., base hospital, Capt. CLARENCE E. IDE, *Los Angeles.*

To Chicago, Ill., Northwestern University Dental School, for instruction, Capt. EMIL F. THOLEN, Los Angeles.

To Hoboken, N. J., for duty, Major CLARENUCE QUINAN, San Francisco.

To Los Angeles, Calif., for *orthopedic instruction,* Lieuts. *FRANK* J. BRESLIN, JAMES H. McLAUGHLIN, Los Angeles; RALPH M. SMITH, *San Bernardino.*

To *report* to the Commanding General, Southern Department, Fort Sam Houston, Texas, for duty, from San Antonio, Major FREDERICK P. GAY, Berkeley.

To *San Francisco, Calif.,* for duty, from Camp Kearny, Capt. THOMAS J. ORBISON, Los Angeles.

To *Western Department,* San Francisco, Calif., for duty, Lieut. MEYER B. FRACTMAN, San Francisco.

To *their homes* and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JACK K. HANSON, Newman; Lieuts. HOWARD B. DIXON, *Daly City;* JOHN G. ABBOTT, Riverside.

Colorado

To Fort Riley for instruction, Lieut. SAMUEL B. McFARLAND, Longmont. Hospital train, from Fort Riley, Lieut. ARTHUR E. GILL, Sopris.

To Fort Sam Houston, Texas, for temporary duty, from St. *Louis,* Lieut. FRED F. STOCKING, Florista.

To Markleton, Pa., U. S. Army General Hospital, for duty, from Camp Joseph E. Johnston, Capt. PHILIP A. LOOMIS, Colorado Springs; from Camp Sheridan, Capt. HENRY W. HOAGLAND, Colorado Springs.

Connecticut

To Army Medical School for instruction, Lieut. HERBERT C. OELSCHLEGEL, Torrington.

To Belleville, Ill., Scott Field, *Signal Corps Aviation* School from Fort Riley, Lieut. EDWARD J. HOWLAND, Colchester.

To Camp Doniphan, Fort Sill, Okla., *Fort Riley, Camp Dodge,* Des Moines, Iowa, for duty and on completion *to his proper station,* from Camp Bowie, Major James C. GREENWAY, Greenwich.

To Camp Lee, Petersburg, Va., base hospital, Lieuts. SAMUEL J. CHERNAIK, New Britain; GEORGE A. LEONARD, Waterbury.

To Camp MacArthur, Waco, Texas, for duty, from Camp Meade, Capt. WILLIAM T. OWENS, Hartford.

To Camp Shelby, Hattiesburg, Miss., *base* hospital, Lieut. WILLIAM L. SHEAHAN, New Haven.

To Fort Oglethorpe, base hospital, from Army Medical School, Lieut. WILLIAM F. COLLINS, New Haven. *For* instruction, Lieuts. WILLIAM C. GAYLORD, Branford; JAMES A. HARTEN, FREDERICK H. HYNES, New Haven; from duty as a private at Camp Devens, Lieut. ABRAHAM *B.* GROSS, Hartford.

To San Antonio, Texas, Kelly Field, for duty, from Camp Travis, Lieut. ARTHUR F. McDONALD, Waterbury.

District of Columbia

To Camp Hancock, Augusta, Ga., base hospital, on completion of his instruction at the Rockefeller Institute, Lieut. EUGENE C. RICE, Jr., Washington.

To Camp Upton, L. I., N. Y., base hospital, on completion of his instruction at Rockefeller Institute, Lieut. JOHN J. O'LEARY, Washington.

To Fort Oglethorpe as instructor, from Fort Oglethorpe, Capt. HENRY C. DREW, Washington. For instruction, Capt. RODMAN H. WILLIAMS, Washington.

Florida

To Arcadia, Carlstrom Aviation Field, for temporary duty, from Aberdeen, Md., Lieut. HENRY P. BEVIS, Arcadia.

To Fort Benjamin Harrison, Ind., Hospital Train, from Fort Oglethorpe, Lieut. WALTER P. DICKINSON, Nichols.

To Fort Oglethorpe as instructor, from Fort Oglethorpe, Capts. JULIAN E. GAMMON, Jacksonville; for instruction, Capt. FRANK F. FERRIS, Tallahassee.

To Washington, D. C., Government Hospital for the Insane, for intensive training from Fort Oglethorpe, Lieut. JOSEPH P. SCHELL, Chipley.

Georgia

To Camp Greene, Charlotte, N. C., base hospital, Capt. WILLIAM W. CARNOG, Lavonia.

To Camp Hancock, Augusta, Ga., for duty, Lieut. ULDRICK McL. KIEFER, Savanah.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. SEARLE B. GILLESPIE, Willacoochee.

To Fort Oglethorpe, for instruction, from Allentown, Pa., Lieut. GORDON BURNS, Douglas. On completion of his instruction at Rockefeller Institute, Lieut. ROLAND L. BROOKS, Geneva.

To Hoboken, N. J., hospital train, Lieut. WILLIAM H. LYDAY, Hampton.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. JAMES D. DELAMAR, West Point.

To New York City, Post-Graduate Medical School and Hospital, for instruction in urology and dermatology from Fort Oglethorpe, Capt. WALPOLE C. BREWER, Atlanta; Lieut. CHARLES J. WOODS, Darien.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* Lieut. LUCIUS K. PATTERSON, Cuthbert.

Resignation of Lieut. AUSTIN J. KEMP, Tifton, accepted.

Idaho

To Fort Oglethorpe for instruction, from Fort Caswell, N. C., Lieut. CLYDE E. WATSON, Nampa.

To Fort Riley, for instruction, Capt. JOSEPH ASPRAY, Moscow.

Illinois

To Army Medical School, Washington, D. C., for instruction, Lieuts. RICHARD W. DENEY, OLIVER R. SPALDING, SIDNEY N. TROCKEY, FRANK W. YOUNG, Chicago; FRANK E. SMITH, Decatur; HARLEY G. STANTON, East St. Louis; FLOYD E. BEST, Freeport; ERNEST C. ASBURY, O'Fallon; ERNEST J. WORTHINGTON, Olney; HOMER P. MacNAMARA, Springfield; ALAN G. BROOKS, Stoy.

To Belleville, Scott Field Signal Corps Aviation School, from Camp Custer, Capt. WILLIAM J. UPPENDAHL, Peoria.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Fort Ethan Allen, Vt.,* for duty, from Fort Oglethorpe, Lieut. LOUIS C. SONDEL, Columbia.

To Camp Beauregard, Alexandria, La., base hospital, from Camp MacArthur, Capt. HARRY ROBESTEIN, Chicago.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieuts. ABRAHAM L. DESSER, HARRY J. DWYER, HENRY C. JOHNSON, Chicago; Lieut. LEO V. GATES, Zeigler.

To Camp Dodge, Des Moines, Ia., base hospital, Lieuts. SAMUEL STEIN, ALBERT VANDERKLOOT, Chicago.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Capt. OSCAR A. HANSEN, Lieut. CHARLES B. BROMBERG, Chicago. Base Hospital, Lieuts. JAMES E. HUNTER, Chicago; HOBART C. RUDDICK, Condoval; ROY D. SHORT, Melrose Park.

To Camp Gordon, Atlanta, Ga., Military School of Aeronautics, from Camp Gordon, Lieut. OTTO J. SCHOTT, Chicago.

To Camp John Wise, San Antonio, Texas, for duty, from Fort Riley, Lieut. CHARLES N. COEN, Cornell.

To Camp MacArthur, Waco, Texas, Aviation Mobilization Corps, from Camp Hancock, Lieuts. ALEXANDER A. DRILL, Chicago. For duty from Fort Riley, HARRY S. SOLOMON, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. VICTOR P. DIEDERICH, Chicago.

To Camp Sevier, Greenville, S. C., base hospital, Capt. JOSEPH C. FRIEDMAN, Chicago.

To Camp Shelby, Hattiesburg, Miss., *Camp Sheridan,* Montgomery, Ala., *Camp McClellan,* Anniston, Ala., for duty, and on completion *to his proper station,* from Camp Pike, Major ARTHUR SMALL, Chicago. Base hospital, Lieuts. WILLIAM V. GOODER, Marengo; JOHN W. MARTIN, Oliver.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Sheridan, Capt. FORD C. WALSH, Rock Island.

To Camp Taylor, Louisville, Ky., base hospital, Lieuts. HYMAN W. BAU, RALPH WALDO CARPENTER, HARRY KATZ, MAX J. MINKER, MEYER S. PEDOTT, Chicago; FLORIAN G. OSTROWSKI, Cicero.

To Chicago, Northwestern University Dental School, for instruction, Lieuts. HARRY E. VANDER BOGART, SAMUEL C. FLEMING, Chicago.

To Dansville, N. Y., for duty, from Fort Riley, Leiut. ALFRED T. EIDE, Chicago.

To Fort Benjamin Harrison, Ind., for duty, from Fort Benjamin Harrison, Capt. EUGENE A. MOULTON, Chicago.

To Fort Oglethorpe for instruction, Capt. JAMES H. WILLIAMSON, Danville; from Camp Grant, Capt. FRENCH S. CARY. For instruction, Lieuts. LEROY H. HARN R, CHARLES F. HARRIS, CLAYTON J. HYSLEP, REXIN P. JOHNSON, Chicago; GEORGE P. POWELL, Dixon; THOMAS K. BOWLES, Ludlow; CLARENCE E. FRYBARGER, Oak Park; from Key West Barracks, Florida, Lieut. EDWARD G. SEPPLE, Chicago.

To Fort Riley, Evacuation Hospital, from Fort Riley, Lieut. EDWARD MacDONALD, Chicago. Hospital train, from Fort Riley, Lieuts. ULYSSES S. GEIGER, Chicago; GEORGE O. DEMOSS, Cropsey; LAWRENCE J. BERNARD, East St. Louis; CLYDE J. CHAMNESS, Elkville.

To Fort Sam Houston, Texas, for duty, on completion of his instruction at New York City, Lieut. FREDERICK H. MAURER, Peoria.

To Fort Sill, Okla., Fort Field, for duty, from Camp Doniphan, Lieut. David R. Scott, Macomb.

To Newport News, Va., for duty, from St. Louis, Capt. ROBERT L. MORRIS, Decatur.

To New York City, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Williamsbridge, Lieut. CHARLES S. PHALEN, Harvard.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. CHARLES H. MANLOVE, Jr., Chicago.

To St. Paul, Minn., for duty, from Rantoul, Capt. OSCAR YARNELL, Decatur.

To Waco, Texas, Aviation Mobilization Camp, from Fort Riley, Lieuts. JOHN E. McGUIGGAN, Chicago; WILLIAM H. RYANS, Murphysboro; HARRY H. HANLEY, Peoria; JOHN J. WILKINSON, Springfield; GEORGE W. KIMBALL, Stewart.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. FREDERICK H. FERGUSON, Chicago.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. JOHN H. FRANKLIN, Spring Valley.

Resignations of Lieut. WILLIAM THOMSON, Belknap; ORIN R. WAKEFIELD, Princeton, and H. A. ZINSER, Washington, accepted.

Indiana

To Army Medical School, Washington, D. C., for duty, from Rockefeller Institute, Capt. KARL C. EBERLY, Fort Wayne. For instruction, Lieuts. CHARLES E. MARTIN, Carlos; GEORGE C. TAYLOR, Claypool; ALBERT A. WATTS, Gary; DONALD L. MILLER, Indianapolis.

To Camp American University, Washington, D. C., as camp surgeon, from Camp American University, Capt. CLARENCE K. JONES, Indianapolis.

To Camp Logan, Houston, Texas, base hospital, from St. Louis, Lieut. WARREN D. CALVIN, Fort Wayne.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. LOUIS A. BOLLING, Attica.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. MELVIN S. TETERS, Middlebury.

To Fort Oglethorpe as commanding officer of hospital train, from Fort Oglethorpe, Lieut. IRVING H. WILLETT, Valparaiso.

To Fort Riley for instruction, from Fort Riley, Lieut. FRED G. EBERHARD, South Whitley.

To New Orleans, La., for instruction, and on completion *to his proper station,* from Camp Travis, Lieut. GEORGE L. MARSHALL, Bourbon.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. HARRY B. GUDGEL, Princeton.

To San Francisco, Calif., for instruction and on completion *to Camp Kearny,* Linda Vista, Calif., base hospital, from South Bend, Wash., Lieut. ARLIE J. ULLRICH, Aurora.

Honorably discharged, Capt. CHARLES F. HOPE, Coatesville.

Resignations of Capts. WILLIAM R. PHILLIPS, Glenwood, CHARLES E. STONE, Shoals, accepted.

Iowa

To Army Medical School, Washington, D. C., for instruction Lieuts. EDWARD C. HENRY, Oil City; JAMES K. GUTHRIE, Rockwell.

To Camp Cody, Deming, N. M., base hospital, Lieut. DAN W. SHINE, Oelwein; Lieuts. FRANCIS J. HOMBACH, Council Bluffs; JAMES E. DYSON, Manilla; GEORGE E. HERMANCE, Marshalltown.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieuts. GEORGE S. GILPIN, Des Moines; OLIVER E. McGREW, Grandview.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. JAMES A. PORTER, Hedrick.

To Camp John Wise, San Antonio, Texas, for duty, from Fort Riley, Lieut. ERNEST D. COOK, Maquokata.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Rockefeller Institute, Capt. GEORGE A. PLUMMER, Cresco.

To Chicago, Northwestern University Dental School, for instruction, Lieut. GEORGE R. NARRLEY, Keokuk.

To Danville, N. Y., for duty, from Fort Riley, Lieut. MILTON A. GIVEN, Des Moines.

To Fort Oglethorpe, for instruction, Capt. GEORGE R. HILL, Charter Oak; Lieuts. WILLIAM L. GRIFFIN, Charles City; JAMES E. EDGINGTON, Washington.

To Fort Riley, for instruction, Capt. PRINCE E. SAWYER, Sioux City.

Kansas

To Army Medical School, Washington, D. C., for instruction, Lieuts. CHARLES W. ROBINSON, Atchinson; ALBERT A. STOLL, Longton; EARL C. LIGHTFOOT, Mineral.

To Camp Doniphan, Fort Sill, Okla., for duty, from *Fort Riley,* Lieut. EDWARD K. LAWRENCE, Great Bend.

To Camp John Wise, San Antonio, Texas, for duty, from Fort Riley, Lieut. GUY H. WINSLOW, Grainsfield.

To Camp MacArthur, Waco, Texas, Aviation Mobiliatzion Camp, for Fort Riley, Lieut. DAVID E. KISECKER, Caldwell; Lieut. JOHN C. McKINNON, Caldwell.

To Chicago, Northwestern University Dental School, for instruction, and on completion *to Fort Riley,* for temporary duty, from Fort Riley, Capt. HARRY L. CHAMBERS, Lawrence.

To Fort Riley, for instruction, Lieut. EARL J. FORST, Wichita.

To New Haven, Conn., for duty, from Fort Riley, Capt. JOHN B. BRICKNELL, Americus.

To Newport News, Va., for duty, from Fort Logan H. Roots, Lieut. CLYDE M. ZINK, Wellington.

To Waco, Texas, Aviation Mobilization Camp, from Fort Riley, Lieut. GEORGE W. MATESON, Wichita.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLAUDE F. HAYES, Arlington.

Kentucky

To Army Medical School, Washington, D. C., for instruction, Capt. GRIFFIN C. KELLY, Louisville.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. EARLE E. SMITH, Fristoe.

To Camp Beauregard, Alexandria, La.; *Camp Pike,* Little Rock, Ark.; *Camp Bowie,* Fort Worth, Texas, and *Camp MacArthur,* Waco, Texas, for duty, and on completion *to his proper station,* from Camp Logan, Major JOHN H. BLACKBURN, Bowling Green.

To Camp Bowie, Fort Worth, Texas, base hospital, Capt. GEORGE H. DAY, Louisville.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. ZACHARY M. ABSHEAR, Buckhorn.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. ZEBULEN H. SCHULTZ, Utica.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Lieut. RICHARD R. SNOWDEN, Irvine.

To Fort Oglethorpe, for instruction, from Camp Meade, Capt. WALTER A. LACKEY, Paducah; from Camp Zachary Taylor, Capt. MARVIN S. NEAL, Daniel Boone. For instruction, Lieut. HENRY D. BERRYMAN, Eastwood.

To Pittsburgh, for instruction, and on completion *to Camp Dodge,* base hospital, Capt. WILLIAM S. LITTLE, Owensboro.

To their homes and honorably discharged, Lieuts. JOHN G. SIDDENS, Lucas; HOMER A. SUTTER, Newport. On account of physical disability existing prior to his entrance into the service, Lieut. HUGH L. McLEAN, Wilmore.

Resignations of Lieuts. HERMAN T. CARTER, Gilbertsville, and JOSEPH H. ALLEN, Langley, accepted.

Louisiana

To Camp A. A. Humphreys, Accotink, Va., for duty, from Rockefeller Institute, Lieut. CHARLES W. PHILLIPS, Lensburg.

To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Camp Pike, Lieut. EARL D. McCLEAN, Oskaloosa.

To Fort Oglethorpe, for instruction, Lieut. EWELL A. KLEINPETER, Thibodaux. Hospital train, from Fort Oglethorpe, Lieut. PHILIP H. NEVITT, Plain Dealing.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. WINFIELD N. FLOYD, New Orleans.

To Rockefeller Institute, for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Camp Logan, Lieut. EDWARD B. F. FAGET, New Orleans.

To Waco, Texas, Aviation Section, Signal Corps, Lieut. JOSEPH M. HOUNTHA, New Orleans.

To his home and honorably discharged, Lieut. WALTER C. MIDDLETON, Cravens.

Maine

To Army Medical School, for instruction, Lieuts. ALBERT G. KINNEY, Blue Hill; DANA F. CUMMINGS, Cherryfield.

To Camp Jackson, Columbia, S. C., base hospital, Major THOMAS J. BURRAGE, Portland.

To Camp Logan, Houston, Texas, as a member of a board to examine the command for nervous and mental diseases, from Camp Shelby, Capt. FRANK E. LESLIE, Andover.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. H. W. JOHNSON, Wytopitlock.

To Fort Oglethorpe, for instruction, Lieut. WALTER W. HENDEE, National Soldiers' Home. Hospital train, from Fort Oglethorpe, Lieut. HARRY L. KILGORE, Belfast.

Maryland

To Army Medical School, for instruction, Capt. JOSEPH W. COOK, JOHN G. MURRAY, Baltimore. For duty, Lieut. CHARLES A. LAUBACH, Baltimore.

To Camp Devens, Ayer, Mass., tuberculosis examining board, from Camp Upton, Lieut. SAMUEL NEWMAN, Baltimore.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. BRYANT E. HARRELL, Baltimore.

To Camp Hancock, Augusta, Ga., base hospital, on completion of instruction at Rockefeller Institute, Lieut. VERNON S. WILKINSON, Aberdeen.

To Camp Meade, Annapolis Junction, Md., base hospital, from New York City, Lieut. AUSTIN H. WOOD, Baltimore.

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. LOUIS M. LIMBAUGH, Baltimore.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. HUGH C. F. GILL, Baltimore.

To Fort McHenry, for duty, Capt. ARTHUR P. HERRING, Baltimore.

To Fort Oglethorpe for instruction, Lieut. JACK M. HUNDLEY, Jr., Baltimore. On completion to Army Medical School for duty, Lieut. CHARLES B. ENSER, Baltimore.

To New York City, Bellevue Hospital, for instruction, and on completion *to Camp Hancock,* Augusta, Ga., base hospital, Capt. JOHN G. MURRAY, Baltimore. Neurological Institute for instruction, Lieut. MICHAEL J. EGAN, Jr., Baltimore. Roosevelt Hospital, for instruction, and on completion to Camp Beauregard, base hospital, from Fort Oglethorpe, Lieut. HENRY H. STANSBURY, Baltimore.

Massachusetts

To Army Medical School for instruction, Lieuts. FREDERICK R. BARNES, Fall River; PERCY F. MILLER, Harwich; BURTON E. HAMILTON, West Roxbury.

To Boston, Mass., Aviation Section Signal Corps, Charitable Eye and Ear Infirmary, as officer in charge, from Boston, Lieut. WILLIAM J. HARKINS, Boston.

To Cambridge, Institute of Technology, for duty, from Boston, Lieut. EDWARD I. W. BARTOL, Milton.

To Camp A. A. Humphreys, for duty, from Fort Oglethorpe, Lieut. ANDREW F. SHEA, Lawrence.

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Oglethorpe, Major WALTER R. WEISER, Springfield.

To Camp Devens, base hospital, Major FRANKLIN G. BALCH, Jamaica Plain.

To Camp Dix, Wrightstown, N. J., *Camp Meade,* Annapolis Junction, Md., and *Camp Lee,* Petersburg, Va., for duty and on completion *to his proper station,* from Camp Devens, Major HOMER GAGE, Worcester.

To Camp Greene, Charlotte, N. C., as sanitary inspector, from Camp Greene, Major WILLIAM J. McDONALD, Brookline. Base hospital, Major HARRY W. GOODALL, Boston.

To Camp MacArthur, Waco, Texas, Aviation Mobiliaztion Camp, for duty, from Camp Devens, Lieut. ALFRED J. BONNEVILLE, Hatfield.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. FORREST F. PIKE, Melrose; Lieut. FRANK W. A. MITCHELL, Lynn. Base hospital, from New York City, Lieut. EVERETT A. MERRILL, Lynn.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. WARREN M. PETTENGILL, Boston.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. MANUEL F. CUNHA, Somerville; from Rockefeller Institute, Lieut. JOHN H. TAYLOR, Cambridge.

To Camp Sherman, Chillicothe, O., for duty, from Fort Oglethorpe, Lieut. HARRY H. SUMNER, Lowell.

To Fort Oglethorpe for instruction, Capt. GEORGE P. COGSWELL, Cambridge; Lieuts. EDWARD A. DUFFY, EN YOUNG KAU, Boston; LEO P. CRIMMIN, Brockton; EDWARD M. HODGKINS, Dorchester. Hospital train, from Fort Oglethorpe, Lieuts. CHARLES MOLINE, Sunderland; CHARLES W. DeWOLF, Tewksbury.

To Hoboken, New Jersey, for duty, from Fort Oglethorpe, Lieut. CLARENCE W. SEWALL, Boston; ALFRED M. LEMAY, Brockton.

To Houston, Texas, Signal Corps Aviation School, Ellington Field, from Boston, Lieut. JOHN G. JENNINGS, Boston.

To Newport News, Va., for duty, from Fort Logan H. Roots, Ark., Lieut. JOHNSTON L. CHERESKIN, Springfield; from New York City, Lieut. CLARENCE G. LANE, Woburn.

To New York City, Bellevue Hospital, for instruction, from Fort McHenry, Lieut. BERNARD A. GODVIN, Boston.

To Rochester, N. Y., Rochester General Hospital, from Camp Devens, Lieut. WILLIAM F. RYAN, Lowell.

To his home and the inactive list from Washington, D. C., Major SAMUEL J. MIXTER, Boston.

Resignation of Lieut. CHARLES H. DAVID, Hamilton, accepted.

Michigan

To Ann Arbor, Psychopathic Hospital, for intensive training, Lieut. WILLIAM D. MUELLER, Traverse City.

To Army Medical School, Washington, D. C., for instruction, Lieuts. HARRY F. DIBBLE, Detroit; HARRY J. DEFNET, VICTOR F. RYAN, Escanaba; MIAR J. McLAUGHLIN, Jackson; ALBERT E. CATHERWOOD, Middleton; RENE J. ST. LOUIS, Midland.

To Camp Custer, base hospital, from New York City, Lieut. DAUNE W. CRANKSHAW, Lawrence.

To Camp Dix, Wrightstown, N. J., *Camp Upton,* L. I., N. Y., *Camp Devens,* Ayer, Mass., for duty, and on completion *to his proper station,* from Camp Meade, Major NELLIS B. FOSTER, Ann Arbor.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Capt. NORMAN J. PIKE, Saginaw.

To Cape May, N. J., for temporary duty, from Camp Jackson, Capt. FREDERICK W. BAESLACK, Detroit.

To Fort Oglethorpe for instruction, Lieuts. HARTHAT L. KEIM, Ann Arbor; ROLAND E. TOMS, Grand Rapids; from Fort Caswell, Lieut. WM. A. O'BRIEN, Detroit.

To Fort Riley for instruction, Capt. CHARLES V. HIGH, Coleman; Lieut. WAYNE A. COCHRANE, East Lansing.

To Fort Sam Houston, Texas, for duty, from Camp Beauregard, Lieut. KENNETH F. MAXEY, Detroit.

To New York City, Bellevue Hospital, for instruction and on completion *to his proper station,* from Camp Lee, Capt. HUGH McD. BEEBE, Ann Arbor.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* Capt. GEO. S. FODEN, Highland Park.

Resignation of Lieut. LESTER F. KENNEDY, Detroit, accepted.

Minnesota

To Camp Dodge, Des Moines, Ia., as commanding officer of the base hospital, from Camp Dodge, Major FRANK C. TODD, Minneapolis.

To Camp MacArthur, Waco, Texas, for duty, from Camp Dodge, Lieut. WALTER N. LEE, Madison.

To Camp Meade, Annapolis Junction, Md., base hospital, from St. Louis, Capt. WILLIAM V. LINDSAY, Winona.

To Fort Riley, hospital train, from Fort Riley, Major EDWARD A. MEYERDING, St. Paul; Lieuts. HUGH H. SLOCUMB, Belgrade; OTTO J. SEIFERT, New Ulm; CLARENCE A. RATHBUN, Rice.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation and on completion *to his proper station,* from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

To St. Paul, Signal Corps Detachment, for duty, Lieuts. FRANK A. GRAWN, Duluth; PAL L. ASHLEY, Minneapolis; FRANCIS L. POWERS, Pipestone.

To his home and the inactive list, Major WILLIAM J. MAYO, Rochester.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. HENRY E. BINET, Coleraine.

Mississippi

To Fort Oglethorpe for instruction, Lieut. THOMAS M. KANE, Jr., Jackson.

To Fort Riley, Camp Pike, Little Rock, Ark., *Camp MacArthur,* Waco, Texas, *Camp Bowie,* Fort Worth, Texas, for duty, and on completion *to his proper station,* from Camp Doniphan, Major JOHN W. MARKSDALE, Winona.

Missouri

To Army Medical School, Washington, D. C., for instruction, Lieuts. BENJAMIN E. COBB, Lemons; CLAUDE L. SELLERS, St. Louis.

To Camp American University, Washington, D. C., as sanitary inspector, from Camp A. A. Humphreys, Accotink, Va., Capt. EDWARD S. SMITH, Macon.

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Bowie, Lieut. ARTHUR C. F. BROWN, Kansas City.

To Camp Custer, Battle Creek, Mich., *for duty, from Fort Riley,* Lieuts. CARTER A. PROCTOR, Doniphan; HERMAN RAMMING, St. Louis; GEORGE A. NIEWEG, Vancleve.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. WALTER L. BRANDON, Broseley.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Greene, Capt. CHARLES H. HECKER, St. Louis. As divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. ROBERT E. BYRNS, St. Louis.

To Camp MacArthur, Waco, Texas, *Aviation Mobilization* Camp, Lieut. CLARENCE J. LAWS, Princeton.

To Camp Meade, Annapolis Junction, Md., base hospital, from St. Louis, Mo., Lieut. JAMES B. BIGGS, Bowling Green.

To Camp Pike, Little Rock, Ark., base hospital, from St. Louis, Lieut. EDWIN D. EDWARDS, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, *Camp Logan,* Houston, Texas, *Camp Beauregard,* Alexandria, La., for duty, and on completion *to his proper station,* from Camp MacArthur, Major OLIVER H. CAMPBELL, St. Louis.

To Chicago, Ill., Camp Grant, Rockford, Ill., *St. Louis, Mo., Camp Sherman,* Chillicothe, Ohio, *for investigation, and on completion to his proper station,* Major FREDERICK W. BAILEY, St. Louis. Northwestern University Dental School, for instruction, Capt. JOHN F. HASSIG, Lieuts. FRANK H. BACH, LOT D. MABIE, Kansas City.

To Fort Leavenworth, for duty, Lieut. ARLESS A. BLAIR, St. Louis.

To Fort McPherson, Ga., base hospital, from Army Medical School, Lieut. BERNARD J. McMAHON, St. Louis.

To Fort Riley for instruction, Capts. BENJAMIN R. McALLASTER, Carthage; CLIFTON R. DUDLEY, St. Louis; Lieuts. ALLEN G. SCOTT, Cardwell; JOSEPH L. BUTTON, QUITMAN U. NEWELL, St. Louis.

To Lonoke, Ark., Signal Corps, Aviation School, Eberts Field, Lieut. ALFRED L. WESSLING, Martinsville.

To New York City, Neurological Institute, for intensive training, from Camp Stuart, Capt. MARC R. HUGHES, St. Louis.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation, and on completion *to his proper station,* from Fort Riley, Lieut. CLAY E. MULLINAX, Princeton. For instruction, and on completion *to Camp Taylor,* base hospital, Lieut. HERMAN A. LAFORCE, Jasper.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Fort Riley, Lieut. FRED S. PERRINGS, St. Louis.

Montana

To Camp Custer, Battle Creek, *Mich., for duty,* from Fort Riley, Lieut. HOMER J. FLINN, Butte.

To Fort Riley, hospital train, from Fort Riley, Major ROBERT E. HATHAWAY, Glendive. For instruction Capt. SAMUEL G. ARNOLD, Billings; Lieut. RALPH G. NELSON, Cut Bank.

To Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. GEORGE J. JUCKEM, Big Sandy.

To Pittsburgh, Pa., for instruction, and on completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. HAROLD SCHWARTZ, Butte.

Nebraska

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Joseph E. Johnston, Lieut. JOHN F. ALLEN, Omaha.

To Camp Sevier, Greenville, S. C., for duty, *from* Camp Doniphan, Lieut. MARION T. SIGLER, Pickrell.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. JOHN C. MOORE, Omaha.

To Fort Oglethorpe as instructor, from Fort Oglethorpe, Capt. WILLIAM N. ANDERSON, Omaha.

To Fort Riley for instruction, Lieuts. WILEY S. COZART, EDWARD R. SWEENEY, *Filley;* from duty as a private at Fort Riley, Lieuts. HARRY J. PITTOCK, Ingleside; FRANCIS P. MURPHY, Omaha. Hospital train, from Fort Riley, Lieut. CHARLES W. W. HARMS, Omaha.

To Waco, Texas, Aviation Mobilization Camp, *for duty, from* Fort Riley, Lieut. CHARLES L. HOUSEL, Ansbury.

Nevada

To Army Medical School for instruction, Lieut. CLIFFORD ASHBY, East Ely.

New Hampshire

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Jackson,* base hospital, Lieut. PHILIAS A. PION, Concord. On completion *to Fort Slocum,* New York, for duty, from Fort Oglethorpe, Lieut. PHILIP McQUESTON, Nashua.

To Camp American University, Washington, D. C., as assistant to the camp surgeon, from Fort Oglethorpe, Lieut. EDWARD C. DURGIN, East Andover.

Resignation of Capt. WILLIAM N. SOUTER, Fort Constitution, accepted.

New Jersey

To Army Medical School for instruction, Lieut. DAVID C. THOMPSON, Bloomfield.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Dix,* base hospital, from Fort Oglethorpe, Lieut. LYMAN B. HOLLINGSHEAD, Pemberton.

To Camp Dix, Wrightstown, base hospital, from New York City, Lieut. CHARLES RICH, Newark.

To Camp Gordon, Atlanta, Georgia, base hospital, from Camp Jackson, Lieut. LEO E. FROMESSES, Elizabeth.

To Camp Wheeler, Macon, Ga., *base hospital,* from *New York City,* Lieut. EDWARD GUION, Atlantic City.

To Fort Oglethorpe, for instruction, Lieuts. LEONARD M. KALAHER, Jersey City; VANE B. SIGLER, Trenton. Hospital train, Lieut. EDWARD P. ESSERTIER, Hackensack.

To Newport News, Va., for duty, from New York City, Lieut. SAMUEL ROTHENBERG, Newark.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* Lieut. HALVOR L. HARLEY, Pleasantville.

To their homes and honorably discharged, Lieut. LESTER H. SPARKS, Lakewood; Lieut. JAMES F. WALLIS, Pleasantville.

New Mexico

To Fort Riley for instruction, from Fort Logan, Major WILLIAM P. MILLS, East Las Vegas.

To San Francisco, Calif., Letterman General Hospital, for duty, from Camp Lewis, Capt. DAVID C. TWICHELL, Albuquerque.

New York

To Army Medical School, Washington, D. C., for orthopedic instruction, from Williamsbridge, N. Y., Capt. JAMES C. DAVIS, Rochester. For instruction, Lieuts. JOHN D. EVERLOF, New York City; FRANK K. RYAN, Plattsburgh; HENRY M. MITCHELL, Yorkville. For orthopedic instruction, Lieut. RAEBURN J. WHARTON, Brooklyn For duty, from Rockefeller Institute, Lieut. RAY S. NELSON, New York City.

To Belleville, Ill., Scott Field Signal Corps, Aviation School for duty, from Buffalo, Lieut. EDWARD F. MEISTER, Buffalo.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Capt. FREDERIC N. WILSON, New York City.

To Camp Beauregard, Alexandria, La., as orthopedic surgeon, *from* New York City, Lieut. JESSE R. PRICHARD, New York City.

To Camp Dix, Wrightstown, N. J., as cardiovascular examiner with the tuberculosis board, from Camp Meade, Capt. CHARLES G. O'CONNOR, Brooklyn. Base hospital, Capt. ALEXANDER L. ANDERSON, Brooklyn.

To Camp Gordon, Atlanta, Ga., *Camp McClellan,* Anniston, Ala., and *Camp Pike,* Little Rock, Ark., for duty, and on completion *to his proper station,* from Camp Zachary Taylor, Major JUNIUS N. McHENRY, New York City. As assistant to the camp surgeon, from Fort Oglethorpe, Major EDWARD A. SOUTHALL, Buffalo. As division psychiatrist, from Camp Bowie, Capt. JOHN J. HUGHES, New York City.

To Camp Greene, Charlotte, N. C., base hospital, Capt. FREDERICK M. IVES, New York City; from Camp Pike, Capt. MYRON L. MORRIS, New York City.

To Camp Hancock, Augusta, Ga., for duty, from Memphis Tenn., Lieut. RICHARD P. DOODY, Cohoes.

To Camp Lee, Petersburg, Va., for investigation in connection with the treatment of meningitis carriers, and on completion *to his proper station,* Major EDWARD K. DUNHAM, New York City. To examine the command for nervous and mental diseases, from Neurological Institute, Lieut. BERTRAM BROWN, Brooklyn.

To Camp Logan, Houston, Texas, as divisional tuberculosis specialist from Fort Oglethorpe, Capt. JAMES P. HUNT, New York City. As a member of a board to examine the command for nervous and mental diseases, from Camp Doniphan, Lieut. WARD W. MILLIAS, Rome.

To Camp MacArthur, Waco, Texas, for duty, from Camp Cody, Lieut. SAMUEL ROTH, Blackwell's Island.

To Camp McClellan, Anniston, Ala., base hospital, from Camp McClellan, Lieut. JOHNSTON MacLEOD, Flushing.

To Camp Pike, Little Rock, Ark., as a member of the tuberculosis examining board, from Fort Oglethorpe, Lieut. FELIX GRABOFF, New York City.

To Camp Shelby, Hattiesburg, Miss., as orthopedic surgeon, from Boston, Lieut. RAYMOND B. MORRIS, Olean.

To Camp Sheridan, Montgomery, Ala., base hospital, on completion of his instruction at Rockefeller Institute, Lieut. HAROLD L. MILLERHOF, New York City.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. BERNATH WEISS, Brooklyn; JOSEPH SUBKIS, New York City.

To Camp Upton, Long Island, as orthopedic surgeon, from New York City, Lieut. WALTER H. McSHANE, Troy.

To Fort Oglethorpe, as instructor, from Fort Oglethorpe, Capt. JAMES W. PRICE, Saranac Lake. For instruction, from Fort Caswell, Capt. JOSEPH P. O'BRIEN, Albany; from Key West Barracks, Florida, Capt. MAXWELL K. WILLOUGHBY, Auburn; STANMORE L. CASH, New York City. For instruction, Lieuts. BYRON E. CHAPMAN, Broadalbin; JOHN D. COLSON, LOUIS F. CRASSON, HENRY J. FEASTER, DAVID D. KRUPP, WILLIAM J. PUDNEY, JOSEPH B. STENBUCK, Brooklyn; EARL C. HOLDEN, Canastota; DAVID DAVIDSON, Good Ground; ARNOLD M. GOODHART, RAYMOND T. POTTER, New York City; WILLIAM F. SWEENY, Saratoga Springs. Hospital train, from Fort Oglethorpe, Lieuts. ROBERT S. FAMILTON, JACOB N. FEINBERG, New York City; ENRICO C. SOLDINI, Stapleton.

To Fort Riley, hospital train, from Fort Riley, Lieut. ANDREW J. GOODWIN, Ithaca.

To Fort Sam Houston, Texas, for duty, from Camp Beauregard, Lieut. ROBERT L. LEVY, New York City.

To Fort Sheridan, Ill., for investigation in connection with the prevention of meningitis, and on completion *to his proper station*, Major GEORGE DRAPER, New York City, from Rockefeller Institute, Major SIMON FLEXNER, New York City.

To Fairfield, Ohio, Wilbur Wright Field, Signal Corps, Aviation School for duty, from Dayton, Ohio, Lieut. MILTON H. GOLDBERG, Buffalo.

To Mineola, Long Island, Hazelhurst Field, Signal Corps, Aviation School, for duty, from Army Medical School, Lieut. JAMES P. FITZGERALD, Clayton.

To Newport News, Va., for duty, from Fort Logan H. Roots, Ark., Lieut. GEORGE D. UBEL, Salamanca; from New York City, Lieut. THOMAS P. BURRUS, Brooklyn.

To New York City, for inspecting classes of instruction, and on completion *to his proper station*, Major RAYMOND P. SULLIVAN, Brooklyn. Bellevue Hospital for instruction and on completion *to Brooklyn* for duty, Lieuts. KURTHA P. BLABER, Brooklyn. Neurological Institute for intentive training, from Camp Dix, Lieut. LEON M. WILBOR, Jasper. Post-Graduate Medical School and Hospital, for instruction in urology and dermatology, Lieut. DAVID E. KREMAN, New York City; from Camp Hancock, Lieut. WALTER L. WEEDEN, Clifton Springs. Roosevelt Hospital for instruction, Lieut. GEORGE R. HORTON, Brooklyn. Roosevelt Hospital for instruction, and on completion *to Camp Grant*, base hospital, from Fort Oglethorpe, Lieut. GEORGE B. PACE, New York City.

To Philadelphia, Pa., University Hospital, for instruction and on completion *to Camp Dix*, Wrightstown, New Jersey, base hospital, from Camp Upton, Capt. HARRY P. MENCKEN, Long Island, N. Y.

To report to the Surgeon-General for duty in his office, from Army Medical School, Lieut. JOHN P. SHARP, Niagara Falls.

To Rochester, N. Y., Rochester General Hospital, for duty, from Camp Jackson, Capt. ALEXANDER S. SIM, Brooklyn.

To Rockefeller Institute for instruction, and on completion *to Fort McPherson*, for temporary duty, from New York City, Major EDWARD W. PINKHAM, New York City. On completion *to Army Medical School*, for duty, from Fort Oglethorpe, Lieut. JOSEPH D. ROSENTHAL, Brooklyn.

To his home and honorably discharged Capt. MAURICE A. STURM, New York City.

Resignations of Capt. JOHN R. LE COMTE, New York City; Lieuts. BENJAMIN E. HELPRIN, Brooklyn, and VICTOR A. TYRASINSKI, Tonawanda, accepted.

North Carolina

To Boston, Mass., Boston City Hospital, for instruction and on completion *to Hoboken, N. J.*, Lieut. BURNICE E. MORGAN, Stocksville.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. HENRY W. TIDMARSH, Bethel.

To Fort Oglethorpe for instruction, Lieut. LOUIS G. BEALL, Asheville.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. RACK F. BENTHALL, Ahoskie.

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. BENJAMIN G. ALLEN, Henderson.

North Dakota

To Camp Doniphan, Fort Sill, Oklahoma, for duty, from Fort Riley, Lieuts. GEORGE MONTEITH, Hazleton; BANJAMIN FRANKSON, Rugby.

To Camp McClellan, Anniston, Ala., base hospital, from Camp McClellan, Lieut. HOWARD L. SAYLOR, Cogswell.

To Chicago, Ill., Northwestern University Dental School, for instruction, and on completion *to his proper station*, from Camp Dodge, Lieut. ALOYSIUS P. NACHTWEY, Dickinson.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Lieut. FRED E. RIDMAN, Mott.

To Hoboken, N. J., hospital train, from Fort Riley, Capt. ORVILLE B. MILAND, Grand Forks.

To Newport News, Va., for duty, from New York City, Lieut. WILLIAM H. GOLDSTEIN, Kearny.

Ohio

To Army Medical School, Washington, D. C., for instruction, Lieut. EDWARD C. GOLDCAMP, Ironton.

To Boston, Mass., Boston City hospital, for instruction, and on completion to Fort Slocum, N. Y., for duty, from Fort Oglethorpe, Lieut. JOHN D. KESSLER, Columbus.

To Camp Custer, Battle Creek, Mich., *Camp Grant*, Rockford, Ill., and *Camp Zachary Taylor*, Louisville, Ky., for duty, and on completion *to his proper station*, Major ALFRED FRIEDLANDER, Cincinnati.

To Camp Grant, Rockford, Ill., base hospital, from St. Louis, Capt. CLARENCE E. PFEIFER, Columbus; Lieut. ARTHUR R. KNAUF, Cincinnati.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. STANLEY L. ALLEN, Zanesville.

To Camp Lee, Petersburg, Va., as assistant to the camp surgeon, from Fort Oglethorpe, Capt. RUFUS SOUTHWORTH, Glendale.

To Camp MacArthur, Waco, Texas, for duty, from Camp Sevier, Lieut. ARTHUR W. CARLEY, Dayton.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Rockefeller Institute, Lieut. JAMES H. WARREN, Columbus.

To Fort McPherson, Ga., for duty, from Fort Oglethorpe, Lieut. WILLIAM S. NICHOLS, Cleveland.

To Fort Oglethorpe for instruction, Capt. HARRY S. NOBLE, St. Mary's. Lieuts. EARL C. WOOD, Columbus; SILAS W. SAXTON, Steubenville; ARTHUR N. SMITH, Upper Sandusky. Hospital train, from Fort Oglethorpe, Lieut. CHALLIS H. DAWSON, Portsmouth.

To Fort Riley, Evacuation Hospital, from Fort Riley, Lieut. A. H. HIXSON, Johnstown.

To Fairfield, Signal Corps Aviation school, Wilbur Wright Field, for duty, from Dayton, Lieuts. JAMES W. ALLBRITAIN, KENNETH A. CLOUSE, Columbus.

To Newport News, Va., for duty, from New York City, Lieut. LAWRENCE D. MILLER, Toledo; from St. Louis, Lieut. EDWARD J. BRAUN, Youngstown.

To New York City, Roosevelt Hospital, for instruction, and on completion *to Camp Custer*, base hospital, from Fort Oglethorpe, Lieut. FREDERICK T. MILES, Salem.

To Rockefeller Institute for instruction in laboratory work, Lieut. JAMES R. DAVIS, Painesville.

To Southern Department for assignment to duty, from Fort Sill, Major ROBERT CONARD, Blanchester.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Army Medical School, Capt. CARROLL L. STOREY, Oberlin.

Oklahoma

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Devens*, base hospital, from Fort Oglethorpe, Lieut. THOMAS M. TOLER, Wirt.

To Camp Beauregard, Alexandria, La., as orthopedic surgeon in the camp, from Camp MacArthur, Capt. LEONARD S. WILLOUR, McAllester.

To Camp Pike, Little Rock, Ark. base hospital, from St. Louis, Lieuts. JAMES C. HAWKINS, Blackwell; CLAUDE E. PUTNAM, Oklahoma City.

To Fort Riley for instruction, Lieuts. FRANK G. FRANCISCO, Enid; PHILIP F. HEROD, El Reno.

Oregon

To Camp Lewis, American Lake, Wash., for duty, from Camp Lewis, Lieut. WILL H. POTTER, Scio.

To Camp Taylor, Louisville, Ky., as assistant to the camp surgeon from Fort Riley, Capt. DAVID N. ROBERG, Portland.

To Chicago, Ill., Northwestern University Dental School, for instruction, Lieut. GARRETT L. HYNSON, Portland.

To Fort Riley, for instruction, Lieut. FRANK E. BUTLER, Hot Lake.

To Washington, D. C., Army Medical Museum, and on completion *to his proper station*, from Philadelphia, Capt. LAWRENCE SELLING, Portland.

Pennsylvania

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, Lieut. WILLIAM W. McC. MILLS, Duquesne.

To Army Medical School, Washington, D. C., for instruction Lieut. HOMER LeR. HILL, Johnstown.

To Boston, Mass., Boston City Hospital, for instruction, and on completion to Camp Lee, base hospital, from Fort Oglethorpe, Lieut. FRANK G. SCHARMANN, Johnstown.

To Camp American University, Washington, D. C., as assistant to the camp surgeon, from Washington, D. C., Lieut. LEON C. DARRAH, Reading.

To Camp Beauregard, Alexandria, La., as divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. WILLIAM C. SPALDING, Cresson.

To Camp Dix, Wrightstown, N. J., as cardiovascular examiner with the tuberculosis board, Lieut. ALVIN S. SIEGEL, Philadelphia. For

Minnesota

To Camp Dodge, Des Moines, Ia., as commanding officer of the base hospital, from Camp Dodge, Major FRANK C. TODD, Minneapolis.

To Camp MacArthur, Waco, Texas, for duty, from Camp Dodge, Lieut. WALTER N. LEE, Madison.

To Camp Meade, Annapolis Junction, Md., base hospital, *from* St. Louis, Capt. WILLIAM V. LINDSAY, Winona.

To Fort Riley, hospital train, from Fort Riley, Major EDWARD A. MEYERDING, St. Paul; Lieuts. HUGH H. SLOCUMB, Belgrade; OTTO J. SEIFERT, New Ulm; CLARENCE A. RATHBUN, Rice.

To Pittsburgh, Pa., Carnegie Institute of Technology, *for instruction* in automobile maintenance and gas engine operation and on completion *to his proper station,* from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

To St. Paul, Signal Corps Detachment, for duty, Lieuts. FRANK A. GRAWN, Duluth; PAL L. ASHLEY, *Minneapolis;* FRANCIS L. POWERS, Pipestone.

To his home and the inactive list, Major WILLIAM J. MAYO, Rochester.

To his home and honorably discharged on account of physical disability existing prior to his entrance *into the service,* Lieut. HENRY E. BINET, Coleraine.

Mississippi

To Fort Oglethorpe for instruction, Lieut. THOMAS M. KANE, Jr., Jackson.

To Fort Riley, Camp Pike, Little Rock, Ark., *Camp MacArthur,* Waco, Texas, *Camp Bowie,* Fort Worth, Texas, for duty, and on completion *to his proper station,* from Camp Doniphan, Major JOHN W. MARKSDALE, Winona.

Missouri

To Army Medical School, Washington, D. C., for instruction, Lieuts. BENJAMIN E. COBB, Lemons; CLAUDE L. SELLERS, St. Louis.

To Camp American University, Washington, D. C., as sanitary inspector, from Camp A. A. Humphreys, Accotink, Va., Capt. EDWARD S. SMITH, Macon.

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Bowie, Lieut. ARTHUR C. F. BROWN, Kansas City.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieuts. CARTER A. PROCTOR, Doniphan; HERMAN RAMMING, St. Louis; GEORGE A. NIEWEG, Vancleve.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. WALTER L. BRANDON, Broseley.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Greene, Capt. CHARLES H. HECKER, St. Louis. As divisional tuberculosis specialist, from Fort Oglethorpe, Lieut. ROBERT E. BYRNS, St. Louis.

To Camp MacArthur, Waco, Texas, Aviation Mobilization Camp, Lieut. CLARENCE J. LAWS, Princeton.

To Camp Meade, Annapolis Junction, Md., base hospital, from St. Louis, Mo., Lieut. JAMES B. BIGGS, Bowling Green.

To Camp Pike, Little Rock, Ark., base hospital, from St. Louis, Lieut. EDWIN D. EDWARDS, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, *Camp Logan,* Houston, Texas, *Camp Beauregard,* Alexandria, La., for duty, and on completion *to his proper station,* from Camp MacArthur, Major OLIVER H. CAMPBELL, St. Louis.

To Chicago, Ill., Camp Grant, Rockford, Ill., *St. Louis, Mo., Camp Sherman,* Chillicothe, Ohio, for investigation, and on completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis. Northwestern University Dental School, for instruction, Capt. JOHN F. HASSIG, Lieuts. FRANK H. BACH, LOT D. MABIE, Kansas City.

To Fort Leavenworth, for duty, Lieut. ARLESS A. BLAIR, St. Louis.

To Fort McPherson, Ga., base hospital, from Army Medical School, Lieut. BERNARD J. McMAHON, St. Louis.

To Fort Riley for instruction, Capts. BENJAMIN R. McALLASTER, Carthage; CLIFTON R. DUDLEY, St. Louis; Lieuts. ALLEN G. SCOTT, Cardwell; JOSEPH L. BUTTON, QUITMAN U. NEWELL, St. Louis.

To Lonoke, Ark., Signal Corps, Aviation School, Eberts Field, Lieut. ALFRED L. WESSLING, Martinsville.

To New York City, Neurological Institute, for intensive training, from Camp Stuart, Capt. MARC R. HUGHES, St. Louis.

To Pittsburgh, Pa., Carnegie Institute of Technology, for instruction in automobile maintenance and gas engine operation, and on completion *to his proper station,* from Fort Riley, Lieut. CLAY E. MULLINAX, Princeton. For instruction, and on completion *to Camp Taylor,* base hospital, Lieut. HERMAN A. LAFORCE, Jasper.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Fort Riley, Lieut. FRED S. PERRINGS, St. Louis.

Montana

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. HOMER J. FLINN, Butte.

To Fort Riley, hospital train, from Fort Riley, Major ROBERT E. HATHAWAY, Glendive. For instruction Capt. SAMUEL G. ARNOLD, Billings; Lieut. RALPH G. NELSON, Cut Bank.

To Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. GEORGE J. JUCKEM, Big Sandy.

To Pittsburgh, Pa., for instruction, and on completion *to Camp Taylor,* base hospital, from Fort Riley, Lieut. HAROLD SCHWARTZ, Butte.

Nebraska

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Joseph E. Johnston, Lieut. JOHN F. ALLEN, Omaha.

To Camp Sevier, Greenville, S. C., for duty, from Camp Doniphan, Lieut. MARION T. SIGLER, Pickrell.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. JOHN C. MOORE, Omaha.

To Fort Oglethorpe as instructor, from Fort Oglethorpe, Capt. WILLIAM N. ANDERSON, Omaha.

To Fort Riley for instruction, Lieuts. WILEY S. COZART, EDWARD R. SWEENEY, Filley; from duty as a private at Fort Riley, Lieuts. HARRY J. PITTOCK, Ingleside; FRANCIS P. MURPHY, Omaha. Hospital train, from Fort Riley, Lieut. CHARLES W. W. HARMS, Omaha.

To Waco, Texas, Aviation Mobilization Camp, for duty, from Fort Riley, Lieut. CHARLES L. HOUSEL, Ansbury.

Nevada

To Army Medical School for instruction, Lieut. CLIFFORD ASHBY, East Ely.

New Hampshire

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Jackson,* base hospital, Lieut. PHILIAS A. PION, Concord. On completion *to Fort Slocum,* New York, for duty, from Fort Oglethorpe, Lieut. PHILIP McQUESTON, Nashua.

To Camp American University, Washington, D. C., *as assistant to the* camp surgeon, from Fort Oglethorpe, Lieut. EDWARD C. DURGIN, East Andover.

Resignation of Capt. WILLIAM N. SOUTER, Fort Constitution, accepted.

New Jersey

To Army Medical School for instruction, Lieut. DAVID C. THOMPSON, Bloomfield.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Dix,* base hospital, from Fort Oglethorpe, Lieut. LYMAN B. HOLLINGSHEAD, Pemberton.

To Camp Dix, Wrightstown, base hospital, from New York City, Lieut. CHARLES RICH, Newark.

To Camp Gordon, Atlanta, Georgia, base hospital, from Camp Jackson, Lieut. LEO E. FROMESSES, Elizabeth.

To Camp Wheeler, Macon, Ga., base hospital, from New York City, Lieut. EDWARD GUION, Atlantic City.

To Fort Oglethorpe, for instruction, Lieuts. LEONARD M. KALAHER, Jersey City; VANE B. SIGLER, Trenton. Hospital train, Lieut. EDWARD P. ESSERTIER, Hackensack.

To Newport News, Va., for duty, from New York City, Lieut. SAMUEL ROTHENBERG, Newark.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* Lieut. HALVOR L. HARLEY, Pleasantville.

To their homes and honorably discharged, Lieut. LESTER H. SPARKS, Lakewood; Lieut. JAMES F. WALLIS, Pleasantville.

New Mexico

To Fort Riley for instruction, from Fort Logan, Major WILLIAM P. MILLS, East Las Vegas.

To San Francisco, Calif., Letterman General Hospital, for duty, from Camp Lewis, Capt. DAVID C. TWICHELL, Albuquerque.

New York

To Army Medical School, Washington, D. C., *for orthopedic instruction,* from Williamsbridge, N. Y., Capt. JAMES C. DAVIS, Rochester. For instruction, Lieuts. JOHN D. EVERLOF, New York City; FRANK K. RYAN, Plattsburgh; HENRY M. MITCHELL, Yorkville. For orthopedic instruction, Lieut. RAEBURN J. WHARTON, Brooklyn For duty, from Rockefeller Institute, Lieut. RAY S. NELSON, New York City.

To Belleville, Ill., Scott Field Signal Corps, Aviation School for duty, from Buffalo, Lieut. EDWARD F. MEISTER, Buffalo.

To Boston, Mass., Boston City Hospital, for instruction, and on completion *to Camp Upton,* base hospital, from Fort Oglethorpe, Capt. FREDERIC N. WILSON, New York City.

To Camp Beauregard, Alexandria, La., as orthopedic surgeon, from New York City, Lieut. JESSE R. PRICHARD, New York City.

To Camp Dix, Wrightstown, N. J., as cardiovascular examiner with the tuberculosis board, from Camp Meade, Capt. CHARLES G. O'CONNOR, Brooklyn. Base hospital, Capt. ALEXANDER L. ANDERSON, Brooklyn.

To Camp Gordon, Atlanta, Ga., *Camp McClellan,* Anniston, Ala., and *Camp Pike,* Little Rock, Ark., for duty, and on completion *to his proper station,* from Camp Zachary Taylor, Major JUNIUS N. McHENRY, New York City. As assistant to the camp surgeon, from Fort Oglethorpe, Major EDWARD A. SOUTHALL, Buffalo. As division psychiatrist, from Camp Bowie, Capt. JOHN J. HUGHES, New York City.

To Camp Greene, Charlotte, N. C., base hospital, Capt. FREDERICK M. IVES, New York City; from Camp Pike, Capt. MYRON L. MORRIS, New York City.

To Camp Hancock, Augusta, Ga., for duty, from *Memphis Tenn.,* Lieut. RICHARD P. DOODY, Cohoes.

To Camp Lee, Petersburg, Va., for investigatio ction with
the treatment of meningitis carriers, and on co *proper*
station, Major EDWARD K. DUNHAM, New xamine
the command for nervous and mental diseases, Insti-
tute, Lieut. BERTRAM BROWN, Brooklyn. alist

To Camp Logan, Houston, Texas, as divisio As
from Fort Oglethorpe, Capt. JAMES P. HUN al
a member of a board to examine the command
diseases, from Camp Doniphan, Lieut. WARD

To Newport News, Va., for duty, from Fort Oglethorpe, Capt. WALTER F. LEECH, Richmond.

Wisconsin

To Camp Custer, Battle Creek, Mich., for duty, from Fort Riley, Lieut. MARTIN J. TREICHLER, Hancock.

To Camp John Wise, San Antonio, Texas, for duty, from Fort Riley, Lieut. ARTHUR F. STUECK, Michicot.

To Camp Taylor, Louisville, Ky., base hospital, Lieut. ERNST L. HENNIG, Beloit; CECIL B. HAKE, Milwaukee.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Allentown, Lieut. LEON G. SMITH, Ellsworth.

To Cape May, N. J., for duty, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

To Newport News, Va., for duty from Fort Logan H. Roots, Lieut. CHARLES B. RYDELL, Superior.

To St. Paul, Minn., Signal Corps Detachment, Lieut. DAVID D. MEHIGAN, Milwaukee.

To Waco, Texas, Aviation Mobilization Camp, from Fort Riley, Lieut. JAMES H. FOWLER, Lancaster.

Wyoming

To his home and honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. WALTER M. LACEY, Cheyenne.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Dwyer Asks Rehearing.—Lieut. John G. Dwyer, who was recently ordered dismissed from the Army at Camp Funston, following a court martial, has asked for a rehearing. Lieutenant Dwyer was a practitioner at Cullom. He states that the charges against him were made by Captain Whistler, who afterward robbed the bank at the camp of $62,000, killed four men with an ax, and then took his own life.

Safeguarding Camps.—Plans for the joint supervision of sanitary conditions in Illinois training camps by state and federal authorities have been formulated by the office of Dr. C. St. Clair Drake, state director of health. It has been recommended to enlarge the military camp at Scott Field, Belleville, to include East St. Louis. The other six military zones in Illinois are Fort Sheridan; Great Lakes; East Peoria, which includes Peoria; Chanute Field, Rantoul; Rock Island and Moline, and Camp Grant, Rockford. Medical directors will be appointed to oversee the work of sanitation in these military zones.

Chicago

Personal.—Dr. Robert Lenard, South Chicago, was shot through the head by the husband of a patient, March 1.——Dr. Robert A. Allen, for six years medical director of the Westside Y. M. C. A., left, March 6, for similar work in France.

Grievance Committee Formed.—The Chicago Medical Society has formed a grievance committee to protect the profession from medical quacks, violators of the medical and other laws, and to investigate disreputable persons in the city. The committee is composed of Dr. Fred L. Glenn, George L. Apfelbach and Otto T. Freer.

Sanitary Inspector in Washington.—Mr. C. B. Ball, chief medical inspector of the Chicago Health Department, is in Washington, D. C., where he has been asked to remain as a member of the staff of Otto Eidlitz, head of the housing department of the Department of Labor and the Council of National Defense.

INDIANA

Hospital Opened.—A new hospital constructed of brick, concrete and steel, containing thirty-three beds and costing $60,000, has been opened at Connersville.

Hygiene for Police.—A hygiene school for policemen is to be opened in Indianapolis. Dr. H. C. Morgan, secretary of the board of health, is to be the instructor. The course will prepare the police force for supervising conditions affected by alleys and premises, and will aim to teach the primary precautions against disease and bad living conditions. Proper sewage disposal and housing conditions will be included in the instruction.

LOUISIANA

Personal.—Dr. J. George Dempsey, New Orleans, has been called to France for special tuberculosis work under the American Red Cross.——Dr. Rudolph Matas, New Orleans, recently spoke before the New Orleans Association of Commerce, on "Recent Achievements in War Surgery."——Dr. Ernest C. Samuel has been reelected radiologist of the Eye, Ear, Nose and Throat Hospital, New Orleans.

MAINE

Graduation Exercises.—March 2 the annual graduation exercises of the Medical School of Maine were held in Portland. Acting President Kenneth C. Sills of Bowdoin College presided. The annual address was delivered by the Rev. Ashley Day Leavitt.

Progress of State Health Department.—The newly established department of health is progressing in material welfare as well as in accomplished work. In a short time the department will move from the state house into new quarters recently modeled for the use of the various divisions, including the laboratories. The staff of workers is being constantly increased on account of the growth of the work. Recently a successful joint conference was held by the state department and the local boards of health. This was the first meeting of its kind to be held in the state.

MARYLAND

Campaign to Raise Funds for Hospital.—Plans have been inaugurated for a campaign to raise $25,000 for the South Baltimore Eye, Ear and Throat Hospital. The money raised will be used to enlarge the hospital and convert it into a general hospital.

Pneumonia Still Prevalent.—Pneumonia continues on the increase despite the advent of springlike weather, as recently there were reported within twenty-four hours, twenty-two new cases and seven deaths. The health department is confident that the present apparent epidemic will soon subside, as the general public is rapidly becoming educated to the necessity of observing its rules for the protection of health.

MINNESOTA

Personal.—Lieut. John S. Abbott, M. R. C., St. Paul, on duty with the British forces is reported to be suffering from a slight attack of trench fever at a base hospital.——Drs. Thomas Russell, Grand Rapids; Delbert F. Dumas, Deer River; R. V. C. Blythe and Edward Seguin, Bovey, have been appointed physicians of Itasca County.

Service Flag for Medical College.—A service flag bearing fifty stars was hoisted over Millard Hall, the main hall of the University of Minnesota, Minneapolis, February 25. The stars represent the members of the faculty who have entered the Medical Corps.——February 26, the students of the college of medicine dedicated a service flag bearing about 700 stars, representing all the students who have entered the government service since the outbreak of the war.

Lectures on Social Hygiene.—Dr. Mabel S. Ulrich, Minneapolis, supervisor of social hygiene education for the state board of health, has arranged for a course of lectures to be given at the University of Minnesota, Minneapolis, for the purpose of training women to extend the work of giving social hygiene lectures throughout the state. Professors Nochtrieh, Frank C. Todd, Coffman and Woodrow of the faculty are cooperating with Dr. Ulrich, and each will give two or three lectures on problems of social hygiene along their respective lines of work in the university. This course is open only to women outside the university, students and other persons suggested by the state board of health.

MISSOURI

Academy Banquet.—At the twenty-third annual banquet of the Kansas City Academy of Medicine, February 13, twenty-five officers of Base Hospital Unit No. 28 were the guests of honor. Dr. Peter T. Bohan officiated as toastmaster, and addresses were made by Majors Reginald H. Meade, Lindsay S. Milne, John F. Binnie, and Jabez N. Jackson, and by Dr. C. Lester Hall, all of Kansas City.

Social Diseases Reportable.—By unanimous vote, the city council of Kansas City has passed ordinances ruling that persons who have social diseases are reportable for isolation and treatment, prohibiting all persons from pandering or from living as inmates of disorderly houses, and making it a misdemeanor for an owner or driver of a public conveyance to solicit the patronage of questionable places.

Service Flag Presentation.—At its meeting, February 22, the Greene County Medical Society was presented with a service flag bearing eleven stars to represent the members of the society who are in the Medical Reserve Corps of the Army. Attorney Perry T. Allen, in his presentation speech, commended the physicians for their loyalty in sacrificing a good practice to accept the fortunes of war. Dr. William Smith, a pioneer member of the society, accepted the flag and the Rev. C. B. Miller made a patriotic address which was followed by a banquet tendered the members and guests at the Physicians' Club.

Personal.—Dr. Elliott Washburn, formerly business manager of the Kansas City General Hospital, and for the past few weeks in charge of the tuberculosis ward of the institution, has accepted a position on the state tuberculosis commission of New York.——Dr. John Kay, Perrin, was operated on for appendicitis at the Sisters' Hospital, St. Joseph, February 18, and is doing well.——Dr. William M. Kerr, Savannah, health officer of Andrew County, is convalescing after an attack of smallpox.——Dr. John F. Binnie, chief of the surgical staff of Base Hospital Unit No. 28, has resigned as a member of the staff of the Kansas City Hospital.

NEW YORK

Physicians' Building Sold.—The Physicians' and Surgeons' Building, Rochester, was sold under foreclosure action against the Rochester Medical Building Company, incorporated, February 14. The purchase price was $30,000, subject to two incumbrances amounting to $125,000.

Physical Training in Public Schools.—Dr. Eugene Lyman Fisk, medical director of the Life Extension Institute has issued a protest against various amendments pending in the legislature which would greatly weaken the present system of compulsory physical training in the rural schools.

Smallpox in New York State.—A recent report issued by the New York State Health Department states that within the past few months there have been more than 250 cases of smallpox in various parts of the state, several of them being in the city of New York. In Utica there were forty-seven cases within two months, and seventy-eight cases in Frankfort County.

Personal.—Dr. Adolph I. Ringer has been appointed special consultant in diseases of metabolism in the German Hospital.——Dr. John E. Daugherty, Brooklyn, medical superintendent of Green Point Hospital for many years, was ordered transferred by Charity Commissioner Bird S. Coler, and has been succeeded by Dr. Thomas I. Price, assistant medical superintendent for the Kings County Hospital.——Lieut. Albert E. Gilmartin, Brooklyn, M. R. C., on duty at the base hospital at Camp Merritt, has been given leave of absence because of a nervous breakdown.

OHIO

Personal.—Dr. Albert C. Carney has been elected president of the Hamilton Tuberculosis Sanatorium.——Dr. James G. Alcorn, Columbus, has just returned after five months' service with a base hospital at LaPanne, Belgium.——Dr. Clayton W. Russell, Springfield, is reported to be ill in the Springfield City Hospital.

Licenses Revoked and Reinstated.—It is reported that the license of Dr. George W. W. Walker of Roseville has again been revoked. He was formerly associated with the notorious "United Doctors" and his license was revoked several months ago. He was reinstated on the promise to cease itinerant practice, but on failure to do so, his license has been again revoked.——The license of Dr. Alfonza Aratus of Cincinnati was revoked by the state medical board on April 6, 1909, but at a recent meeting of the board he has been reinstated. He has been practicing in Kentucky during the interim.——The state medical board has postponed definite action on the reinstatement of Dr. Henry O. Davis of Steubenville whose license was revoked in 1914.

PENNSYLVANIA

Succeeds Dixon.—Dr. B. Franklin Royer, who has been chief medical inspector of the state department of health for a number of years and who has supervised the work in the Harrisburg office during the long illness of Dr. Dixon, has been appointed active health chief, pending the selection of a permanent successor to the late commissioner.

Admission of Venereal Diseases to Hospitals.—The bureau of medical education and licensure has sent a notice to all the hospitals in the state urging them to admit patients with venereal diseases to their wards and dispensaries and to make adequate provision for their treatment. Emphasis was laid on the need of training of interns in the care of such cases.

Personals.—Dr. J. Louis Borsch, Jr., formerly of Philadelphia, has been awarded the Legion of Honor in recognition of his services as eye surgeon in the military hospital of Grand Père.——Dr. J. Solis Cohen celebrated his eightieth birthday anniversary, February 28.——Dr. George A. Knowles has been appointed a member of the board of trustees of the state hospital for the insane at Norristown.——Dr. Nathaniel S. Yawger has been appointed consulting neurologist to the eastern state penitentiary.

Philadelphia

Officers Elected.—At the meeting of the Philadelphia Neurological Society, February 27, the following officers were elected for the ensuing year: president, Dr. Max H. Bochroch; vice presidents, Drs. Samuel C. Ingraham and Augustus A. Eshner; secretary, Dr. Nathaniel S. Yawger, and treasurer, Dr. S. F. Gilpin.

WISCONSIN

Personal.—Dr. Daniel Hopkinson, Milwaukee, read a paper on "The Medical Witness" at the first session of the annual meeting of circuit judges of the state, held at Milwaukee, February 22.——Dr. Morris Morrison, Cashton, sustained serious injuries to the head and body in a runaway accident, February 26.

Banquet to Base Hospital.—The medical members of the Milwaukee Base Hospital Unit were tendered a complimentary dinner at the University Club by the Milwaukee Medical Society, February 21. Dr. Horace Manchester Brown was toastmaster, and addresses were made by Col. Thomas J. Kirkpatrick, director of the unit, Drs. Arthur T. Holbrook and Philip P. Rogers, and the Rev. Paul B. Jenkins.

CANADA

University News.—The Carnegie Corporation, New York City, has presented McGill University, Montreal, with $1,000,000 in recognition of the devoted service and sacrifice of that institution in helping to bear Canada's burden of the war.——Mrs. Frank Oliver, Edmonton, Alta., has offered McGill University $10,000 or more to establish an annual scholarship of the value of $500 in memory of her son, the late Lieut. Allen Oliver, M.C., killed at the Somme.——The Ontario legislature is granting to the Ontario universities for 1918, the following amounts: Western, London, $20,000 for the public health department; $15,000 for the medical department; $15,000 for the arts, and a special grant of $10,000; Toronto University, large grants, including a special grant of $175,000; Queen's, Kingston, $80,000, including a special grant amounting to $25,000.

Personal.—Dr. Murdock D. Morrison, Dominion, Nova Scotia, has been appointed chief medical officer of the Nova Scotia Workmen's Compensation Board. He has been colliery doctor at Dominion since 1897.——Dr. Delmar Craig, London, Ont., has given up his position as superintendent of the Byron Sanatorium, and has joined the Canadian Army Medical Corps.——Dr. John W. Wood has been appointed surgeon to the jail at Lindsay, Ont., succeeding the late Dr. Wellington C. Jeffers.——Dr. Geraldine Oakley, Toronto, has been appointed supervisor of medical inspection in the public schools of Calgary, Alta., succeeding Dr. Rosamond B. Leacock, who will devote herself to pathologic work.——Col. William B. Hendry, D. S. O., who has been in command of the University of Toronto Base Hospital at Basingstoke, England, is expected to arrive in Toronto in a few days on a two months' leave of absence. While here he will consult with the university authorities with regard to increasing the accommodation at that hospital.——Lieut.-Col. Harold C. Parsons, Toronto, will be in command of the University of Toronto Base Hospital while Colonel Hendry is in Toronto.——Major Howard D. Harrison, Toronto, who joined the R. A. M. C. in 1915, is returning to Toronto to enter private practice.

GENERAL

Discharge of Carriers.—The attention of the Surgeon-General of the United States Public Health Service has been called to the fact that men from the military service who are carriers of various infectious diseases, particularly meningitis, have been discharged into the civil communities of the country. Dr. Oscar Dowling, president of the Louisiana State Board of Health, has made a particularly strong protest against this action by the government authorities, calling attention to specific instances in which meningococcus carriers have been discharged from the service.

British Medical Journal Under Handicap.—Our contemporary, the *British Medical Journal*, states that in addition to a fire which has recently handicapped it in its mechanical department, it is about to suffer from restrictions which are to be enforced by the paper commission, and that its number of pages will be reduced, although to what extent is not announced.

Bequests and Donations.—The following bequests and donations have recently been announced:

Physicians Hospital, Plattsburg, N. Y., the bulk of the estate of Arnold H. Ellis, Plattsburgh, appraised at $50,000.

New York Association for the Blind, and Home of Rest for Consumptives, $10,000 each, and a hospital in Syracuse to be designated by Grace Church of Baldwinsville, $5,000, by the will of Mrs. Mary Elizabeth Turnure.

Posture League.—The annual meeting of the American Posture League in New York City, March 9, closed with a dinner for the honorary boards at the Aldine Club. The following officers were elected: Miss Jessie H. Bancroft, president; Major Frederick R. Green, M. R. C., U. S. Army, Chicago, vice president; Dr. Henry Ling Taylor, New York City, secretary, and Dr. Percy W. Roberts, treasurer, New York City. The reports for the year showed great activity along lines created by war conditions, indicating a quickened public conscience on the subject of health. The technical committees of the league reported that the work for the year was completed on factory and school seats, and shoes and other articles of clothing for men, women and children. They also reported a large educational service rendered by the league.

License for the Sale of Chemicals.—A license is now required for the sale of certain chemicals. This license must be procured from the Bureau of Mines, Washington, D. C., and Pittsburgh, or from a designated representative in certain localities. The cost of the license is 25 cents, and covers the following chemicals: nitro acids of all kinds, perchloric and picric acids, ammonium bichromate, chromate, nitrate and picrate, barium chlorate, chromate, nitrate and peroxid, calcium chromate, permanganate and peroxid, copper and ferric nitrate, lead chromate and citrate, magnesium nitrate, perborate and peroxid, nickel nitrate, oxone, potassium bichromate, chlorate, chromate, nitrate, perchlorate and permanganate, phosphorus, silver nitrate, sodium bichromate, chlorate, chromate, perborate, permanganate and peroxid, strontium chlorate, nitrate and peroxid, and zinc perborate and peroxid.

FOREIGN

Prize Offered for Work on Biochemical Causes of Cancer.—A Swedish exchange, *Hygiea*, reproduces a circular sent out by the Senckenberg Scientific Society at Frankfurt a. M., Germany, announcing that a prize of 15,000 marks is to be awarded in September, 1920, for the best work on the biochemical causes of malignant tumors. The circular further states that an annual stipend of 5,000 marks may be allowed to one or several workers in this line after Sept. 1, 1918, for the purchase of material, etc. Prof. A. Knoblauch is in charge of the matter.

Deaths in the Profession Abroad.—A. W. E. Erlandsen, professor of hygiene at the University of Copenhagen, aged 39. His works on phosphatids, on the titrated skin tuberculin tests and on phlorizin diabetes have attracted attention, and his work in recent years as consultant in public health matters has been of fundamental importance. He succumbed to granulomatosis.——C. I. Istrati, professor of organic chemistry and dean at the University of Bucharest, president of the Roumanian Academy of Sciences.——J. W. Runeberg, professor emeritus of clinical medicine at the University of Helsingfors, Finland, aged 75. He was on the editorial staff of the *Nordiskt Medicinskt Arkiv* and of the *Finska Läkaresällskapets Handlingar* and was a prominent figure at international medical gatherings. His name is best known by his work on the bothriocephalus and pernicious anemia.——G. Walling, medical member of the Havana board of health for thirty-four years.

LONDON LETTER

London, Feb. 19, 1918.

Improvement in Health of London Schoolchildren During the War

At the meeting of the Education Committee of the London County Council, the Children's Care Subcommittee reported on the physical condition of children in London schools, to which close attention has been given during the war. It is found that there has been an all-round improvement in the physical condition of the children, and that the number undernourished has greatly decreased. The explanation appears to be the high wages earned during the war and the absence of unemployment, which have more than compensated for the increased cost of living.

Army Medical Records

The problem of army medical records is a complicated one. The sick or wounded soldier passes through many hands from the time he is struck down on the field till he reaches the hospital in England It is important not only for his treatment but also for the compilation of the medical history of the war that complete records should be kept. The case sheets that have been in use in the army, however suitable in time of peace, have been found cumbersome under the pressure of this gigantic war. The statistical department of the Medical Research Committee (a body appointed under the insurance act for medical investigation which, as previous letters to The Journal show, has rendered great service in investigations connected with the war) has devised a new medical field card to serve as a condensed diary of the patient's hospital career at the seat of the war. The first entry is made by the field ambulance; it gives the date of the wound or onset of illness, a note of the administration of antitetanic serum or morphin, and the diagnosis. The card is enclosed in a stout envelop, which is tied to the man's tunic, and goes with him to the casualty clearing station. There, as at the base hospital, any alteration or addition to the diagnosis is noted, and the inside of the folded card affords space for clinical notes. The envelop contains spaces for particulars of the ambulance train, convoy and hospital ship by which the man is transferred, as well as for information regarding his needs in transit. Temperature charts or additional notes may be sent in the envelop. Thus the patient reaches the home hospital with a brief record of the early stages of his case. On his admission to an oversea base hospital another card—the index card—is issued. There the diagnosis, any operation and its result, and all complications in order of occurrence and a brief summary of other important facts are entered. When the patient reaches a home hospital from overseas, a similar card, printed in red, is made out for him. The cards eventually reach the Medical Research Committee, which arranges and files them for future reference. The three (or two) cards taken together obviate the necessity of maintaining the old medical case sheet, which is no longer required, except for cases of special importance or interest. In addition to this uniform system, applicable to all cases, another more elaborate system has been set up to facilitate inquiries into special classes of cases. Special note-taking schedules have been supplied by the Medical Research Committee to be used for grouping the records of special types of cases, the treatment of which is being studied by chosen medical officers. These subjects include wounds of joints and fractures of long bones; amputations; wounds of the head, chest and abdomen; functional nervous disorders; injuries of the spine; disorders of the heart; nephritis, and gas poisoning.

The Army Medical Service

Since he abandoned practice (except that of consulting surgeon to the navy) for Parliament, Sir Watson Cheyne has done useful work by bringing his special knowledge to bear on medicopolitical questions. His maiden speech on the question of bone-setters and the treatment of wounded soldiers has been previously given in The Journal. He has now criticized the government for the delay in the publication of the report of the committee that has inquired into the medical service in France. It appears that the matter has been under the consideration of the Army Council for two months. Sir Watson Cheyne expressed the opinion that the delay may be in part due to the fact that there is no medical member on this council. Had the director-general of the army medical service been a member of the council when the medical arrangements were being devised for the

Mesopotamia expedition, there would have been no scandal. A similar question with regard to the more complete recognition of the medical service of the United States Army has recently been discussed in The Journal. Sir Watson Cheyne also pointed out that quite early in its work the Air Board had recognized the need of a medical service for the new force. A committee was appointed to advise, but action on its report was delayed and it became known that some sort of intrigue had been going on with the view of preventing the establishment of a special service. Thereupon a second committee was appointed, which tried to keep the two older services in touch with the air service, and a compromise has been reached. The delay of many months such as had occurred was very serious; airmen were losing their lives for want of a proper medical service, and during the period of delay medical officers could not be trained to cope with their illness. Though he did not think much of the compromise, he hoped that it would allow the air service to begin at once to train medical officers. If the compromise broke down, it would be possible to fall back on the original complete scheme.

PARIS LETTER

Paris, Feb. 14, 1918.

Surgical Results Obtained During the Last Aisne Offensive

At a recent meeting of the Académie de médecine, Dr. Tuffier, professeur agrégé à la Faculté de médecine de Paris, and chirurgien des hôpitaux, read a very interesting communication on this subject. As consulting surgeon of the armies in the field, he has been instrumental in effecting the organization of the medical services for the wounded, following the operations during the battle and confirming the ultimate results. He said that our soldiers attained more than the assigned objective on the first day. The irresistible assault necessarily entailed a high proportion of severe wounds; in fact, although 80 per cent. of the wounded were evacuated at once, 20 per cent. were found to be untransportable. So far as the site of the wound is concerned, 16 per cent. were head wounds; 33 per cent. legs; 34 per cent. arms; 10 per cent. thorax; 4 per cent. abdomen, and 2.6 per cent. spine; 20 per cent. of the men suffered multiple wounds. Shell fragments caused 72 per cent. of the wounds; bullets, 17 per cent. The general mortality among the wounded has been 5.18 per cent., due to hemorrhage, to shock, and to the gravity of the wounds. Complicating gangrene had a rate of 3 per thousand, and tetanus of 5 per 10,000. The abdominal wounds were always the most severe. They caused 61 per cent. of the mortality; on the other hand, wounds of the thorax yielded the greatest number of successes (20 per cent. mortality). The fractures and wounds of joints comprised 77 per cent. of the sutures. The wounds of the soft parts gave most remarkable results (83 per cent. cured), so that after forty-five days there remained in the army zone posts only 1.43 per cent. of the wounded.

These results, heretofore unknown during periods of offensive of such intensity, were due to the best possible arrangement of well organized surgical posts; the rapidity of the relief given and the evacuation of the wounded to the special posts for each class of wounds, of which the need was well foreseen; the close cooperation between all the surgical services, which made use of the same technic and the fact that surgeons were able to follow their patients from the firing line back to the rear; and, finally, to the perfection of the technic of immediate disinfection of wounds, primary suture—immediate or tardy—and to secondary suture after chemical disinfection according to the Carrel method.

Recreation Centers for Soldiers

M. Painlevé, minister of war, has decided to establish about 1,300 "foyers du soldat" in the rest billets of the armies. He called on those who have already been doing so much to promote the moral and physical welfare of the soldiers both at the front and in the rear, and referred especially to those who organized the "Foyer du soldat," founded in 1914. The commander in chief has endorsed this appeal and approved of the immediate organization of 100 new "foyers."

The underlying idea is to enable the soldier during his rest periods to spend his time acceptably by contributing to his material comfort and also furnishing him with diversion. M. Sautter, who organized the "Foyer du soldat" in 1914, knew well the obstacles and difficulties to be surmounted. These have been overcome, thanks to the cooperation of the Americans, as shown by the assistance granted by the Y. M. C. A., which has agreed to aid in carrying on the same work in the French armies. This activity will be designated as "Les Foyers du Soldat. Union franco-américaine." Two figures suffice to emphasize the importance of the work done already. Up to the end of 1917, 4,300,000 francs had been spent. The central committee of the Y. M. C. A. in New York has decided to raise for the first six months of 1918, 17,500,000 francs, which will provide sufficient funds to defray the expenses of the 1,300 recreation centers which the minister of war has decided to establish.

Conservation of Public Health

At its last meeting, the council of administration of the Union des syndicats médicaux de France passed a resolution in which it was stated that, being informed of the projects of the Assistance publique relative to the medical organization of the fight against syphilis, the council approves of the establishment of dispensaries for the treatment of this disease, demanding, however, that these dispensaries be placed in charge of physicians to be appointed on advice of the medical authorities and not at the behest of the prefects. The council protested against treating all classes of patients in these dispensaries, whatever their material situation may be, because the prophylactic work demands a most thorough examination by the chiefs of the service, and the individual treatment of all patients, without exception, which is impracticable under a system of open consultation without control.

Association News

THE CHICAGO SESSION

Committee on Arrangements

The Local Committee on Arrangements for the Annual Session of 1918 to be held in Chicago, June 10-14, is actively engaged in perfecting plans for the comfort and entertainment of the Fellows of the Association and their guests.

All correspondence with the Local Committee on Arrangements or with any of its subcommittees should be addressed to 25 East Washington Street, Chicago.

Clinics

The chairman of the subcommittee on clinics, Dr. Charles F. Humiston, announces that there will be a series of clinics for the Fellows of the Association on Thursday, Friday and Saturday, June 6, 7 and 8, and on Monday and Tuesday, June 10 and 11. Further announcements regarding the clinics will appear in these columns from time to time.

Alumni and Section Dinners

Alumni and section dinners will be held on Wednesday evening from 6 to 8 o'clock so as not to conflict with other events which are being planned. The chairman of the subcommittee on alumni and section entertainment, Dr. J. H. Stowell, announces that his committee is cooperating with officers of alumni associations in arranging for reunions. The committee desires, also, to assist the officers of those sections which desire to arrange for section dinners.

Marriages

Lieut. Milfert Weaver Meyers, M. R. C., U. S. Army, York, Pa., on duty at Camp Wadsworth, Spartanburg, S. C., to Miss Anna Neal of Lansford, Pa., at Camp Wadsworth, February 14.

Lieut. George Henry Crofton, M. R. C., U. S. Army, Worcester, Mass., on duty at Fort Sam Houston, Texas, to Miss Agnes J. Rogers of Hartford, Conn., February 6.

Robert Sproul Carroll, M.D., Asheville, N. C., to Miss Grace Stewart Potter of Chicago, February 28.

Wilbur C. Medill, M.D., Yonkers, N. Y., to Miss Fay Calderwood of Steubenville, Ohio, February 2.

William Alanson White, M.D., to Mrs. Lola P. Thurston, both of Washington, D. C., February 21.

Arthur Isidor Blau, M.D., to Miss Lillian Evelyn Klein, both of New York City, February 25.

Deaths

Howard J. Williams, M.D., Macon, Ga.; Jefferson Medical College, 1881; aged 59; a Fellow of the American Medical Association; president of the Medical Association of Georgia in 1907; formerly president of the state board of health; a member of the medical staff of the Macon Hospital since the institution was founded; for twenty years a member and for five years chairman of the city board of health; one of the noted surgeons of the South; surgeon of the Central Georgia Railroad since 1897, and of the Georgia Railroad since 1880; and chief surgeon of the Macon, Dublin, and Savannah Railroad; president of the Central of Georgia Surgeons' Association in 1895, and at the time of his death president of the Georgia Railway Surgeons' Assocation; died in his sanatorium in Macon, March 1, from carcinoma of the throat.

Alfred Birch Huested, M.D.; Delmar, N. Y.; Albany (N. Y.) Medical College, 1863; aged 77; a member of the Medical Society of the State of New York; hospital steward of the One Hundred and Thirteenth New York Volunteer Infantry, and later first lieutenant and assistant surgeon of the One Hundred and Thirty-First New York Volunteer Cavalry during the Civil War; for many years a druggist; president of the State Pharmaceutical Association from 1880 to 1884; professor of materia medica and botany f the Albany College of Pharmacy rom 1893 to 1917, and for the last ive years secretary of the college; president of the state board of pharmacy from its organization in 1884, for sixteen years, and a member of the board until the time of his death; died at his home, February 23.

David Powell, M.D., Marysville, Calif.; Cooper Medical College, San Francisco, 1871; aged 69; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; one of the organizers of the Yuba-Sutter Medical Society, and its secretary for several terms; once president of the California Northern District Medical Society; at one time a member of the State Board of Medical Examiners; for many years district surgeon for the Southern Pacific, Western Pacific and Northern Electric railways; for several terms a member of the Marysville Board of Health and Board of Education; died at his home, February 28, from malignant diseases.

Read Jennings McKay, M.D., Wilmington, Del.; Bellevue Hospital Medical College, 1867; aged 75; a member of the Delaware State Medical Society and its president in 1885; formerly a Fellow of the American Medical Association; a member of the American Ophthalmological Association, and American Otological Society; president of the Newcastle County Medical Society in 1904; assistant to the chair of ophthalmology in his alma mater from 1872 to 1877; oculist and aurist to the Delaware Hospital, Wilmington; died at his home, March 1.

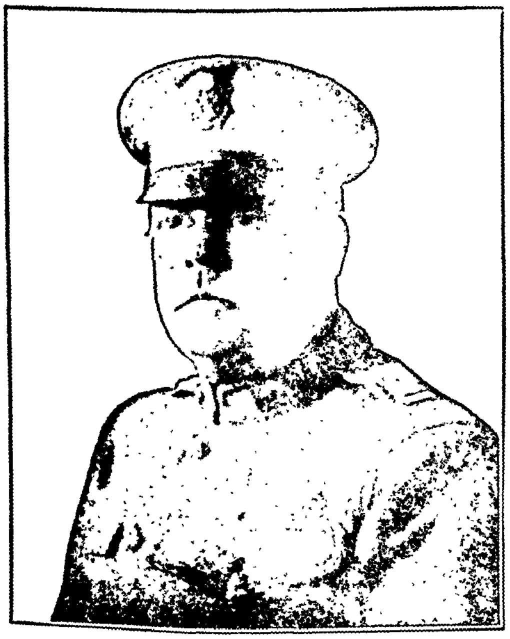
Frederick Dudley Tait, M.D., San Francisco; Bellevue Hospital Medical College, 1886; University of Paris, France, 1889; aged 55; a Fellow of the American Medical Association; formerly president of the California Academy of Medicine; a member of the State Board of Medical Examiners, and of the French Surgical Society; president of the San Francisco County Medical Society; a prolific contributor to the periodical literature of surgery; died in the Adler Sanatorium, San Francisco, February 26, from malignant endocarditis.

Alfred Hamilton Levings, M.D., Milwaukee, Wis.; Northwestern University Medical School, Chicago, 1872; aged 70; a Fellow of the American Medical Association, and a member of the Western Surgical Association; one of the organizers and first president of the Wisconsin Surgical Association; professor of surgery and clinical surgeon in Marquette University, Milwaukee; one of the best known surgeons of the Northwest; died at his home, March 4.

Frank Marshall Reade, M.D., Richmond, Va.; Medical College of Virginia, Richmond, 1899; aged 54; formerly a Fellow of the American Medical Association; professor of pharmacy, and later of meteria medica, therapeutics and obstetrics in his alma mater; chief of the obstetric staff of the Virginia Hospital, Richmond, and for several terms a member of the common council; died at his home, February 26, from chronic nephritis.

Elisha P. Swift, M.D., Norway, Mich.; University of Pennsylvania, Philadelphia, 1889; aged 52; formerly a member of the Michigan State Medical Society, and a Fellow of the American Academy of Medicine; proprietor of the Pennsylvania and Aragon Hospital; surgeon to the Aragon Mine, and local surgeon to the Chicago and Northwestern, and Wisconsin and Michigan railways; died in Clearwater, Fla., February 22.

Fred Phelps Stiles, M.D., Sparta, Wis.; Hahnemann Medical College, Chicago, 1880; aged 62; mayor of Sparta in 1900 and 1901, and from 1916 to 1918 a member of the Monroe County board; for twelve years director of the board of education; a member and president of the public library board; associate editor of the *Minneapolis Homeopathic Magazine;* died at his home, February 24, from angina pectoris.



Died in the Service

Capt. Frank Shumway Pratt, M.D., M. R. C., U. S. Army, 1866-1918

(See The Journal, March 2, p. 641)

Charles Mason Frissell, M.D., Wheeling, W. Va.; College of Physicians and Surgeons in the City of New York, 1882; aged 58; a Fellow of the American Medical Association; founder of the Wheeling Hospital Training School for Nurses; died at his home, February 12, from heart disease. At a meeting of the Ohio County Medical Society, February 22, resolutions of respect were adopted.

Julius Tillman Haney, M.D., Tuscumbia, Ala.; University of Alabama, Mobile, 1891; aged 59; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama, and secretary-treasurer of the Colbert County Medical Society; health officer of Colbert County; died in St. Vincent's Hospital, Tuscumbia, February 16.

Lacy Bebee Darling, M.D., Palmyra, N. Y.; Long Island College Hospital, Brooklyn, 1893; aged 54; a member of the Medical Society of the State of New York, and the Rochester Academy of Medicine; died at his home, February 19, from chronic intestinal nephritis.

William A. Kuhn, M.D., White Cloud, Mich.; Bennett Eclectic Medical College, Chicago, 1887; a member of the Michigan State Medical Society; for three terms president of the village of White Cloud, and for many years a member of the school board; died in Butterworth Hospital, Grand Rapids, Mich., February 19, from hypertrophy of the heart.

David Ramsey Hindman, M.D., Marion, Iowa; Homeopathic Medical College of Pennsylvania, Philadelphia, 1857; aged 85; a veteran of the Civil War; and in 1916 medical director of the G. A. R. Department of Iowa; a member of the city council of Marion in 1874, and for more than ten years city health physician; died at his home, February 25.

William James Greanelle, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1893; aged 47; chief of staff of the Good Samaritan Dispensary, and assistant surgeon of the Twenty-Second Infantry, N. G., N. Y.; died at the Hitchcock Sanatorium, Crest View, Greenwich, N. Y., January 19, from cerebral hemorrhage.

W. Homer Hoopes, M.D., Newport, Pa.; College of Physicians and Surgeons, Baltimore, 1887; aged 55; a Fellow of the American Medical Association; also a druggist; was thrown from a sleigh, February 25, and dragged a considerable distance, suffering a fracture of the skull, and died from his injuries at his home a few hours later.

Raymond Alfred Clifford, M.D., Ypsilanti, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1898; Jefferson Medical College, 1899; aged 44; a Fellow of the American Medical Association; who was operated on a few months ago for the removal of the spleen; died in the Clifton Springs (N. Y.) Sanitarium, March 2, from heart disease.

Clarence Samuel Allison, M.D., Pittsburgh; University of Pittsburgh, 1908; aged 32; a Fellow of the American Medical Association; bacteriologist at the William H. Singer Memorial Laboratories for Scientific Research, Northside, Pittsburgh; a member of the Society of American Bacteriologists; died in the Allegheny General Hospital, February 23.

George Francis Morris, M.D., New York City; Albany (N. Y.) Medical College, 1878; aged 65; a member of the Medical Society of the State of New York; for more than thirty years a medical examiner in the Department of Health of New York City; while crossing Broadway and Eighteenth Street, February 25, died from heart disease.

Edward Milton Richman, M.D., Newark, N. J.; University of Pennsylvania, Philadelphia, 1898; aged 45; a Fellow of the American Medical Association; founder of the Newark Private Hospital; at one time president of the visiting staff of St. James' Hospital, Newark; died in the Newark Private Hospital, March 2, from heart disease.

James Emmett Conn, M.D., Ida Grove, Iowa; State University of Iowa, Iowa City, 1892; aged 50; a Fellow of the American Medical Association, and a well-known surgeon of Iowa; founder of the Conn Hospital; and president of the Ida County Telephone Company; died at his home, March 2.

George Frederick Roehrig, M.D., Denver; Jefferson Medical College, 1890; aged 56; a Fellow of the American Medical Association; for twenty-five years local surgeon of the Burlington system, and a member of the staff of St. Luke's Hospital; died at his home, February 18, from angina pectoris.

William H. Humphrey, M.D., Yellow Springs, Ohio; Medical College of Ohio, Cincinnati, 1877; aged 65; a Fellow of the American Medical Association; also a druggist; president of the Greene County Medical Association for several terms; died at his home, February 18, from heart disease.

Augustus Selle Rose, M.D., Fayetteville, N. C.; University College of Medicine, Richmond, Va., 1901; aged 45; a Fellow of the American Medical Association; also a pharmacist; died in Highsmith Hospital, Fayetteville, February 15, two days after an operation for appendicitis.

Died in the Service

Lieut. Henry Edward Hungerford, M.D., M. R. C., U. S. Army, 1872-1918

(*See The Journal, March 2, p. 641*)

Oscar W. Edmonds, M.D., Frankfort, Ind.; Starling Medical College, Columbus, Ohio, 1886; aged 56; formerly a member of the Indiana State Medical Association, and mayor of Frankfort since 1910; died, February 17, from tuberculosis.

John S. Booth, M.D., Montreal, Que.; McGill University, Montreal, 1889; was knocked down by a street-car and crushed beneath the wheels, while crossing the street in Montreal, February 19, and died soon after in the Western Hospital.

Edward Arbo Trommald, M.D., Los Angeles and Long Beach, Calif.; Cooper Medical College, San Francisco, 1896; aged 52; a specialist on diseases of the eye, ear, nose and throat; died, February 17, after a surgical operation.

William Allan MacFarlane, M.D., Chicago; University of Illinois, Chicago, 1890; aged 69; formerly a Fellow of the American Medical Association; died at his home, February 22, from acute parenchymatous nephritis.

Alfred L. S. Morand, M.D., Boston; Philadelphia College of Medicine and Surgery, 1858; aged 80; formerly acting assistant surgeon in the United States Army; died in the Chelsea (Mass.) Hospital, January 30.

Loyd L. McKinney, M.D., Burnsville, W. Va.; Kentucky School of Medicine, Louisville, 1893; aged 50; a Fellow of the American Medical Association; local surgeon of the Baltimore and Ohio system; died at his home, February 18, from typhoid fever.

Rachel B. Lain, M.D., Vallejo, Calif.; Hahnemann Medical College, Chicago, 1890; formerly a member of the Medical Society of the State of California; died at her home, February 18, from cerebral hemorrhage.

Alexander Vaughan McDonald, M.D., Fond du Lac, Wis.; University of Pennsylvania, Philadelphia, 1904; aged 42; died at the home of his wife's parents in Philadelphia, February 20, from pneumonia.

David M. Winton, M.D., Huntsville, Ala.; University of Alabama, Mobile, 1886; aged 56; a member of the Medical Association of the State of Alabama; died at his home, February 8, from pellagra.

John Binnie, M.D., Poynette, Wis.; Rush Medical College, 1875; aged 73; a Fellow of the American Medical Association; died in a hospital in Madison, Wis., February 16, after a surgical operation.

William Andrew McCornack, M.D., Oakland, Calif.; Cooper Medical College, San Francisco, 1873; New York University, New York City, 1880; aged 68; died at his home, February 9.

Millard F. Bailey, M.D., Wheeling and Warwood, W. Va.; University of Tennessee, Nashville, 1894; aged 56; died at his home in South Warwood, February 19, from cirrhosis of the liver.

Richard H. Moore, M.D., Groesbeck, Ohio; Medical College of Ohio, Cincinnati, 1862; aged 78; died at his old home in Mount Healthy, Ohio, February 17, from cerebral hemorrhage.

James Edward Ashburn, M.D., Portsmouth, Va., Leonard Medical School, Raleigh, N. C., 1895; aged 54; a colored practitioner; died at his home, February 17, from asthma.

Warren Hayes Smith, M.D., Nashville, Tenn.; Vanderbilt University, Nashville, 1915; aged 25; died at the home of his father in Nashville, February 12, from tuberculosis.

Frederick William Dykes, M.D., La Riviere, Manit.; Manitoba Medical College, Winnipeg, 1902; was burned to death in a fire which destroyed his house, February 13.

James Munday Mason, Hawesville, Ky. (license, Kentucky, sixteen years practice, 1896); aged 57; died at his home, February 15, from tuberculosis.

Andrew J. Simmonds, M.D., Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1877; aged 67; died in Mercy Hospital, Hamilton, February 16.

John A. O'Brien, M.D., New York City; Texas Medical College, Galveston, 1876; aged 78; died at his home, February 17, from gastric ulcer.

John W. McFarland, M.D., Lebanon, Tenn.; University of Nashville, Tenn., 1868; aged 74; died at his home, December 20, from chronic dysentery.

John Henry Mullen, M.D., Lynn, Mass.; Harvard Medical School, 1900; aged 41; died in his office in Lynn, February 21, from heart disease.

Pierre E. Dansereau, M.D., Nashua, N. H.; Ecole de Medecine et de Chirurgie, Montreal, 1897; aged 71; died at his home, February 3.

William Henry, M.D., Harmon, Ill.; Rush Medical College, 1870; aged 78; died at his home, January 9, from cerebral hemorrhage.

Chalmers McCall Dickson, M.D., Lansing, Mich.; University of Michigan, Ann Arbor, 1880; died at his home, about February 12.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SWOBODA'S "CONSCIOUS EVOLUTION"

Quackery and Pseudo-Science of the Physical Culture Type

Quackery is always versatile. It seeks to turn to account the latest therapeutic fads or fashions. Especially noticeable has been the tendency in the past few years to capitalize the altogether admirable trend on the part of the public toward exercise. Numerous "systems" of exercise have been advertised under claims that seem to have been limited only by the vocabularies and imagination of those exploiting them. All of these "systems" being in their essentials both old and obvious, it has been necessary to create, as "selling points," elements either of mystery or of do-science which are presented all the plausibility known to art of advertising.

For some years Alois P. Swoboda, once of Chicago and Washington, D. C., but now of New York City, has been selling a mail-order "course" in his "System of Physiological Exercise." Naturally, the cure and alleviation of disease is part and parcel of the "system," for this may always be counted on to widen the appeal and to provide the opportunity of using the ubiquitous testimonial whose commercial value is as large as its scientific value is small.

CONSCIOUS EVOLUTION

"Conscious Evolution" is Swoboda's shibboleth. Not that it means anything, but it sounds rather scientific and can be counted on to impress both the thoughtless and that still larger class of individuals who merely think they think. Swoboda is not the first to appreciate that a meaningless phrase, if couched in pseudo-technical language, paraded frequently and solemnly with a lavish use of italics, capitals and blackfaced type, may be counted on effectually to take the place of thought or common sense.

"Conscious Evolution" seems to have been a bright afterthought, for Swoboda's present advertising booklets differ chiefly from the earlier editions in the substitution of the phrase "Conscious Evolution" for what was formerly "Swoboda's System." According to Swoboda:

> ". . . Conscious Evolution. . . . IS BASED UPON A DISCOVERY IN THE CELLS OF THE BODY WHICH I MADE, AND WHICH HAS REVOLUTIONIZED THE EFFECT OF EXERCISE."

The curative claims made for the Swoboda System have undergone those changes from the "lie direct" to the "lie with circumstance," which in the past few years have characterized advertising through the whole field of quackery. Take for example, these claims made some years ago by Swoboda:

> "It is the only natural, easy and speedy method for obtaining perfect health, physical development and elasticity of mind and body. ABSOLUTELY CURES CONSTIPATION, INDIGESTION, SLEEPLESSNESS, NERVOUS EXHAUSTION AND REVITALIZES THE WHOLE BODY." [Capitals in the original.—Ed.]

THE LIE WITH CIRCUMSTANCE

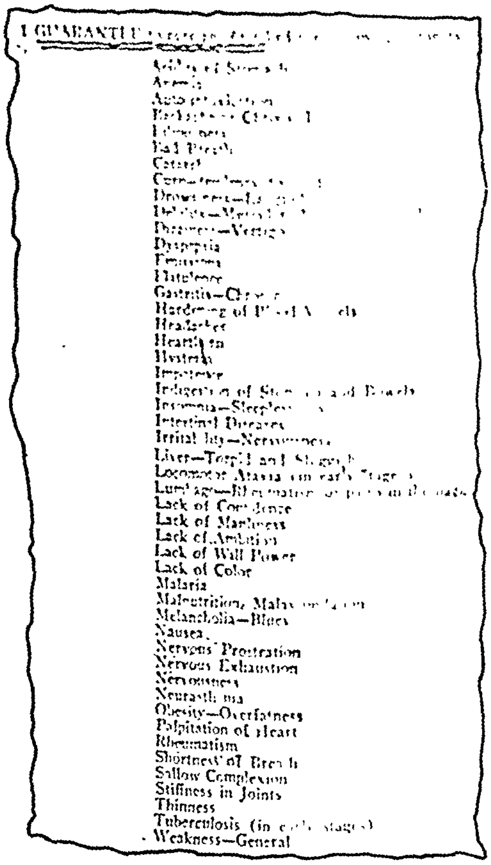
No longer will you find these frank and open falsehoods in the Swoboda advertising, the method of today is less direct. Note for instance the latter day substitute for his older claim that his system "Absolutely Cures Constipation":

> "Regarding constipation, I wish to say that I have treated not less than [illegible] by my System for this ailment alone, and I have yet to lear[illegible]."

No longer do Swoboda's exercises "absolutely cure indigestion" but

> "[illegible] has been the greatest success in correcting, permanently all forms of functional digestive troubles."

Before leaving the past it seems worth while, even if only for purposes of perspective, to quote a few of the older claims:



I GUARANTEE [illegible]
Acidity of Stomach
Anemia
Auto-intoxication
Backache—Chronic
Biliousness
Bad Breath
Catarrh
[illegible]
Drowsiness—Languid
Debility—Mental [illegible]
Dizziness—Vertigo
Dyspepsia
Emaciation
Flatulence
Gastritis—Chronic
Hardening of Blood Vessels
Headaches
Heartburn
Hysteria
Impotence
Indigestion of Stomach and Bowels
Insomnia—Sleeplessness
Intestinal Diseases
Irritability—Nervousness
Liver—Torpid and Sluggish
Locomotor Ataxia (in early stages)
Lumbago—Rheumatism [illegible]
Lack of Confidence
Lack of Manliness
Lack of Ambition
Lack of Will Power
Lack of Color
Malaria
Malnutrition, Malassimilation
Melancholia—Blues
Nausea
Nervous Prostration
Nervous Exhaustion
Nervousness
Neurasthenia
Obesity—Overfatness
Palpitation of Heart
Rheumatism
Shortness of Breath
Sallow Complexion
Stiffness in Joints
Thinness
Tuberculosis (in early stages)
Weakness—General

Before Swoboda had developed his bump of caution his claims were of the "lie direct" type. Above is a photographic reproduction (reduced) from a booklet sent out some time ago as part of the "come-on" literature of the Swoboda "System." This long list of ailments which Swoboda "guaranteed" to "cure" no longer appears in the present advertising matter.

> "You can be *physically just what you wish to be*. You can have reserve vitality for every emergency. *I guarantee it.*"—(*Literary Digest*, Jan 31, 1914.)
>
> "My book [advertising booklet] will give you a better understanding of yourself than you could obtain from a college course. The information which it imparts cannot be obtained elsewhere at any price."—(*Harper's Weekly*, March 6, 1915.)
>
> "The Swoboda System can make you tireless, improve your memory, intensify your will power, and make you physically just as you ought to be. I promise it."—(*Vanity Fair*, May, 1915).
>
> "Swoboda, the world's greatest builder of men, has discovered a remarkable system of rejuvenating the cells . . ."—(*Literary Digest*, May 6, 1916.)

It is not to be inferred from the matter quoted that Swoboda's claims have become more truthful; they are merely more cautious. Take for example the following quotations, describing Swoboda's "System," that appeared in a half-page advertisement of *Collier's* as recently as March 2, 1918, under the screaming headlines: "How to be a Giant in Energy, Health and Mind":

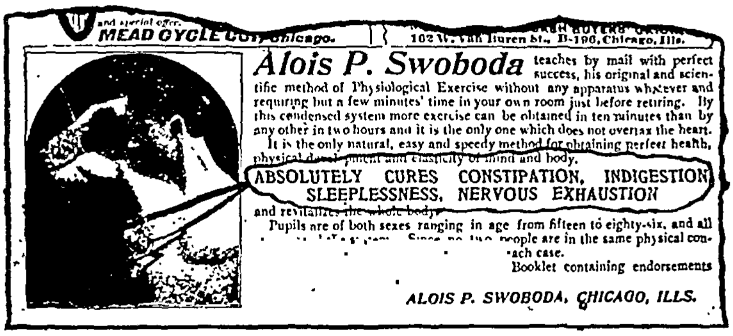
> "A unique, new and wonderful discovery that furnishes the body and brain cells with a degree of energy that surpasses imagination."
>
> "This new system . . . has already resulted in the complete recovery of thousands upon thousands of 'extreme' cases . . ."
>
> ". . . it accomplishes seemingly impossible results entirely without the use of . . exercises . . ."
>
> ". . . this system does its revolutionizing work without asking you to do anything you do not like and neither does it ask you to give up anything you do like."
>
> "When we lack energy and power, when we are listless, when we haven't smashing, driving power back of our thoughts and actions, when we must force ourselves to meet our daily business and social obligations, when we are sick or ailing . . . it is simply because certain cells are weak and inactive or totally dead. . . . These facts . . . were discovered by Alois P. Swoboda and resulted in his marvelous system of cell-culture."

ANSWERING THE ADVERTISEMENT

Having read the very plausible advertisements—and Swoboda evidently spends a good deal of money not only for the space of his advertisements, but also for the "copy"—one writes to Swoboda and receives in return a form-letter so prepared as to simulate an individual communication. In this letter Swoboda says that he is enclosing his book "explaining the human body"—a mere bagatelle—and giving complete information regarding his "system." The book is entitled "Conscious Evolution," and is practically identical with a book sent out earlier by him entitled "Evolutionary Exercise." About one half of the book is devoted to testimonials. The letter explains further that Swoboda's "course" is given in six lessons with one week's interval between lessons. The charge "is always the same, namely, $20 for the complete course." Attention is also called to the enclosed diagnosis blank which the recipient is asked to fill out and send with the twenty dollars. Not that Swoboda calls it a diagnosis blank; "Health Statement" is the more cautious appellation.

If the first letter is not answered, a second comes in due time again urging that $20 be sent and enclosing another diagnosis blank. This letter, if ignored, is followed by a third and it by a fourth. Should the fourth letter bring no response, a period of a few months elapses and a fifth comes marked "personal." *In the fifth letter, in spite of the statement reiterated in the first four letters that the charge is never less than $20, this letter offers for $10 the same course "for which I have asked $20 of you in my former letters."* Should this letter also fail to bring grist to Swoboda's mill, another period elapses and the sixth letter—also marked "Personal"—arrives offering the regular $20 course "on the following terms: $5 in advance, and $1 per week for five weeks. . . ." Should this persuasive letter also be ignored, the seventh "personal" epistle comes, with this postscript:

> "P. S.—Just as a secret between ourselves, and because we have corresponded for such a long time, and to prove to you that I am more than willing to meet you *half way*, you may have my entire $20.00 course, complete, for only $5.00, provided you send your money and health statement by return mail. Borrow the money if you must."



and special offer.
MEAD CYCLE CO., Chicago.
102 W. Van Buren St., D-196, Chicago, Ills.

Alois P. Swoboda teaches by mail with perfect success, his original and scientific method of Physiological Exercise without any apparatus whatever and requiring but a few minutes' time in your own room just before retiring. By this condensed system more exercise can be obtained in ten minutes than by any other in two hours and it is the only one which does not overtax the heart.

It is the only natural, easy and speedy method for obtaining perfect health, physical development and elasticity of mind and body.

ABSOLUTELY CURES CONSTIPATION, INDIGESTION SLEEPLESSNESS, NERVOUS EXHAUSTION

and revitalizes the whole body.

Pupils are of both sexes ranging in age from fifteen to eighty-six, and all people are in the same physical con- each case.

Booklet containing endorsements

ALOIS P. SWOBODA, CHICAGO, ILLS.

A reduced reproduction of one of Swoboda's old advertisements. *No longer does Swoboda claim to "absolutely cure" constipation, indigestion, etc.;* his claims in this direction are now of the indirect type in which, through testimonials, the same ideas are conveyed to the public.

SOME SWOBODA QUESTIONS ARE ANSWERED

Two of Swoboda's "Health Statements" were filled in and sent to him with the required fee. They purported to come from two individuals, Mr. A and and Mr. B. In order to appraise Swoboda's diagnostic abilities, these blanks were so filled that wherever Mr. A answered a question in the affirmative Mr. B answered it in the negative. To give our readers a clear idea of the character of the questions, we reproduce a few of them and the replies sent in by the hypothetical Messrs. A and B:

Questions	Mr. A	Mr. B
Is it necessary to drive yourself into performing your duties?	*No*	*Yes*
Are you inclined to be languid?	*Yes*	*No*
Are you inclined to be listless?	*Yes*	*No*
Are you inclined to be lazy?	*No*	*Yes*
Are you inclined to be weak?	*No*	*Yes*
Are you inclined to be tired?	*Yes*	*No*
Are you ambitious?	*Yes*	*No*
Are you full of vitality?	*Yes*	*No*
Do you desire greater mental and physical energy?	*Yes*	*No*
Do you fear to meet and talk to people?	*No*	*Yes*
Are you nervous when in a crowd?	*No*	*Yes*
Are you mentally sluggish?	*No*	*Yes*
Is your memory poor?	*No*	*Yes*
Are you too thin?	*No*	*Yes*
Are you drowsy after your meals?	*No*	*Yes*
Are you generally run down?	*No*	*Yes*
Do people tell you that you look the picture of health?	*Yes*	*No*
Are your lips red and full of blood?	*Yes*	*No*
Have you a desire for food on arising?	*Yes*	*No*
Do you have distress after eating?	*No*	*Yes*
Do you get dizzy?	*No*	*Yes*
Have you pimples on face and body?	*No*	*Yes*
Headaches?	*No*	*Yes*
Nauseated?	*No*	*Yes*
Is your tongue coated?	*No*	*Yes*
Breath bad?	*No*	*Yes*
Are you nervous?	*No*	*Yes*
Does your heart palpitate long after any excitement?	*No*	*Yes*
Do you feel weak and exhausted after excitement?	*No*	*Yes*
Are you *impatient*?	*No*	*Yes*
Do you feel refreshed upon arising?	*Yes*	*No*
Do you have catarrh of the nose and throat?	*No*	*Yes*
Do you urinate frequently?	*No*	*Yes*
Are you troubled with rheumatism?	*No*	*Yes*
Is there any tendency to tuberculosis in your family?	*No*	*Yes*

SWOBODA'S DIAGNOSIS

Mr. A and Mr. B each received a letter acknowledging the receipt of the money for the course and stating that before finishing the letter Swoboda would give his "opinion of your condition." According to Swoboda, here is what ailed Mr. A:

> "Your trouble is due to your inability to eliminate poisons from your system sufficiently rapid. This is due to inactivity of those nerve centers *which preside over this function.* Consequently there is an accumulation of waste and poison in your blood, which, in turn, weakens the tissues (both muscular and nervous) of your body, thus decreasing your nervous force, and deranging at times *all* the functions of the body."

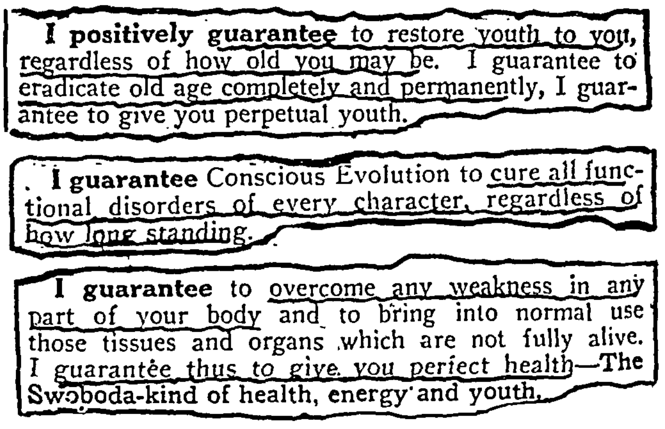
Needless to say, according to Swoboda, his "system" would correct these various conditions. Mr. B's condition was thus diagnosed:

> "Your difficulty is due to periodic congestions of the cells of your body and brain. By disciplining these cells and rendering the entire organism more alive, not only will you cease to be congested, but the cells will be able to develop more energy for you, and you will become thoroughly well. It will be impossible for you to feel depressed, melancholy, blue or discouraged. On the other hand you will feel hopeful, enthusiastic, full of life, and happy, and all the difficulties which you may have, in consequence of life being inferior within your body, will be overcome."

This happy condition was to be produced, of course, by Mr. Swoboda's "System."

THE SWOBODA "COURSE"

The "Course" itself consists of six lessons. Each lesson comprises a single page of paper (letter size) on which are typewritten instructions for certain exercises. On the margins are somewhat crude cuts, obviously put in with a rubber stamp, illustrating the positions assumed in the respective exercises. As the lessons bear the copyright date of 1901, the presumption is that they are the same as those Swoboda was selling seventeen years ago. Lesson I comprises five exercises; Lessons II, III, IV, and V, three exercises each and Lesson VI, two exercises. The exercises themselves are elementary.



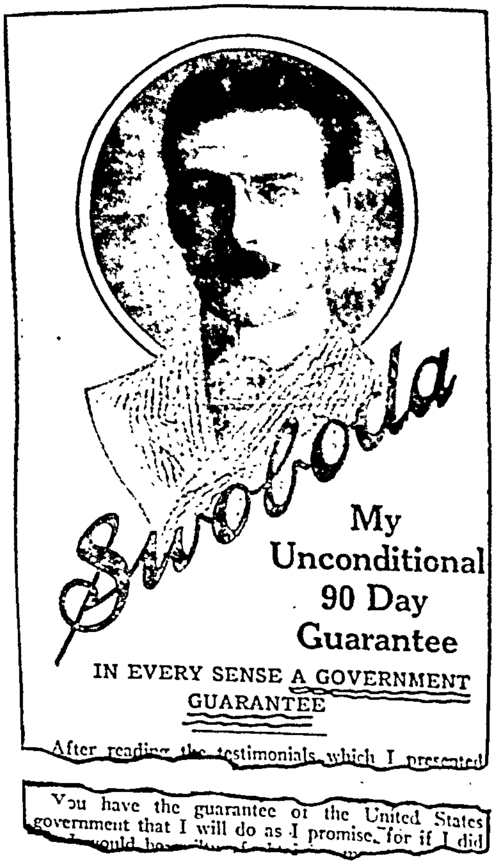
I positively guarantee to restore youth to you, regardless of how old you may be. I guarantee to eradicate old age completely and permanently, I guarantee to give you perpetual youth.

I guarantee Conscious Evolution to cure all functional disorders of every character, regardless of how long standing.

I guarantee to overcome any weakness in any part of your body and to bring into normal use those tissues and organs which are not fully alive. I guarantee thus to give you perfect health—**The Swoboda-kind of health, energy and youth.**

Photographic reproductions (reduced) from Swoboda's *present-day* advertising. Evidently Ponce de Leon looked in the wrong place for the fountain of youth!

The "Lessons" received by Mr. A and Mr. B *were identical!* The first exercise in Lesson I consists in standing with the arms held close to the body and then flexing the forearms alternately. Mr. A was instructed to do this sixteen times and Mr. B to do it twenty times. The second exercise of the same lesson is performed by holding out the arms horizontally and laterally, palms up, and then flexing the forearm. Mr. A. was to do this ten times; Mr. B, fifteen times. In the third exercise of the first lesson the arms are extended laterally, palms forward, then brought forward until the palms meet. Mr. A was told to do this fifteen times and Mr. B twenty times. The fourth and fifth exercises of the first lesson are equally simple, and Mr. A and Mr. B were each to perform them exactly the same number of times.



My Unconditional 90 Day Guarantee

IN EVERY SENSE A GOVERNMENT GUARANTEE

After reading the testimonials which I presented

You have the guarantee of the United States government that I will do as I promise. for if I did

For some years Swoboda has been conveying the impression that the United States Government stood back of his claims. Recently he seems to have dropped this false and misleading statement. Why?

Lesson II, as has already been said, consists of three exercises. In the first exercise the arms are held out horizontally and laterally with the palms down and the hands tightly shut, then the wrists are bent up and down, slowly and rigidly. In the second exercise the arms are held out laterally and horizontally with the palms down, then with the muscles of the shoulders and upper back rigid the shoulder blades are drawn close together and the arms down to the sides, keeping the muscles rigid on the downward motion. In the last exercise of this lesson the arms are extended laterally and horizontally, palms up, the muscles of the arms and shoulders made rigid and the arms then drawn up straight above the shoulders, keeping the muscles rigid on the upward motion only.

Each of the three exercises of Lesson II was to be performed twelve times by Mr. A and sixteen times by Mr. B. All of the rest of the exercises in Lessons III, IV, V and VI, respectively, were to be performed *exactly the same number of times* by Messrs. A and B!

An analysis shows, then, that if you are inclined to be languid, listless, tired and ambitious, as was Mr. A (*vide* "Health Statement") and wish to overcome this condition you should flex your arms sixteen times. Should you, however, be mentally sluggish, of poor memory, too thin, drowsy after your meals and generally rundown, as was Mr. B (also *vide* "Health Statement"), the arms should be flexed twenty times. Should you have a desire for food on arising; should you have lips that are red and full of blood and should people tell you that you look the picture of health, then flex the forearm ten times. But should you have distress after eating, get dizzy, have pimples on face and body, headaches, nausea, coated tongue and bad breath, then flex the forearm fifteen times. Should you suffer from catarrh of the nose and throat, urinate frequently, be troubled with rheumatism and have a family tendency to tuberculosis, then bend the wrists up and down sixteen times as against twelve times if you are not troubled in any such way.

If Mr. Swoboda is not too busy taking in the easy money obtained by imparting his secret of the "discovery in the cells"—should it be "sells"?—he must get a vast amount of amusement out of his diagnoses and the prescriptions he offers therefor. We surmise, however, that a sense of humor would long ago have unfitted Mr. Swoboda for his business.

THE "DISCOVERY IN THE CELLS"

What, one may ask, constitutes the wonderful "discovery in the cells of the body" which Swoboda claims to have made and "which has revolutionized the effect of exercises"? What is the "principle" of the "Swoboda System"? Let the booklet answer:

> "The principle is the scientific antagonization of the energies and forces residing in the positive and negative cells of the brain, nervous system and muscles."

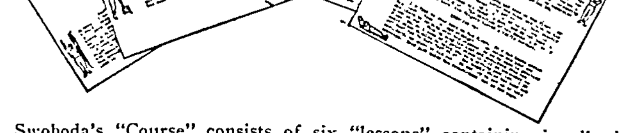
This is a little vague, but one must not expect clarity in "come on" literature. After the money has been sent for the complete course the first "lesson" clears up the mystery. The sum and substance of Swoboda's "System" is that of "using one muscle to resist or antagonize another." For example, in the first exercise of the first lesson, which consists of nothing more unusual than flexing the forearm on the arm, he tells his "pupils"—or "patients"—to attempt to contract the triceps muscles at the same time that the biceps are contracted for the purpose of producing flexion. This in brief is what Swoboda has labeled "Conscious Evolution" or the "Swoboda System." As one of the letters puts it:

> ". . . the antagonism of the muscles is, in reality, more than 95 per cent. of the potential element of my system."

SUMMARY

It is hardly necessary to tell physicians that there is nothing new in the principle of resistive exercises. Such "tension exercises" or "static exercises" have been used for years and more than a third of a century ago the Schotts of Nauheim were regularly employing "self-restraining gymnastics" (*Selb-hemmungs-gymnastik*) in their treatment of chronic diseases of the heart.

That the exercises may be of value in selected cases is readily admitted, but it is obvious that Swoboda is neither competent to determine, nor, even if he were competent, capable, under his mail-order plan, of deciding in what cases the exercises may be harmful. The claim that Swoboda has made that his "instruction is entirely individual" and "just as personal as if you were my only pupil," is pure buncombe.



Swoboda's "Course" consists of six "lessons" containing in all nineteen exercises. The "lessons" are typewritten and crudely illustrated by means of figures obviously put in with a rubber stamp. Above is a greatly reduced facsimile of the "Course"—price $20, $10 or $5, according to the ease with which you part with your money.

The objection to Swoboda's business lies, not in what he sells, but in the way he sells it. As a commercial undertaking, it would be impossible to sell the typewritten instructions for the simple exercises which constitute Swoboda's "course" if the public knew what it was going to get for its money. The reason Swoboda is able to purchase high-priced space in magazines to exploit his "System" is that he deceives the public into believing that he offers something not to be obtained elsewhere.

When Swoboda says that he will "positively guarantee to restore youth to you, regardless of how old you may be," he falsifies. When he says that he will "guarantee to eradicate old age completely and permanently" and "give you perpetual youth," he falsifies again. When Swoboda says that he will "guarantee Conscious Evolution to cure all functional disorders of every character, regardless of how long standing," he talks like a quack, and when he says that he will "guarantee to overcome any weakness in any part of your body" and "to give you perfect health," he is a quack.

In brief, the case against the so-called Swoboda System may be summed up by saying that "Conscious Evolution" is a meaningless phrase whose apparent use is to obtain money by misleading and deceiving the public; that the Swoboda exercises are neither new nor original; that the entire Swoboda scheme is quackery of the "physical culture" type.

Correspondence

THAT TAX ON OLEOMARGARIN

To the Editor:—Kindly permit me a brief space to say a word concerning "oleo." I have been a reader of The Journal for twenty-five years and have not seen anything in its pages which has so stirred my blood as your editorial, January 19. You say: "Without milk in the kitchen, the American housewife would be confronted with unanticipated difficulties in the technic of food preparation. For this reason the dairyman is urged to speed up the production of milk." The housewife you admonish to be conservative in the use of milk in order that our children may be properly nourished. The New York *Times,* from which you quote as against the tax of 10 cents per pound on colored oleomargarin is probably paid a good sum, as are many others, for espousing the cause of the butter substitute.

Again you say: "If the legitimate substitutes for butter were allowed to come into the general use for which they are qualified, not only would a reduction of living expenses become possible thereby, but also the price of milk and cream ought to be decreased."

Listen, Mr. Editor. Can you not see that you are striking a direct blow at the nutrition of the nation? Have you read and considered the experiments of Dr. McCollum at Johns Hopkins? Have you ever thought on the fact that milk is the cheapest article of diet on the market today? Indeed, you would remove the restrictions and allow oleo to be colored so closely that none but a connoisseur could detect the difference. You would assist these charlatans in displacing milk and butter by an inferior substitute, and thus starve the innocent child.

What do you know about the cost of milk production? Why select the farmer and dairyman from among all other classes and say you have no right to advance your prices for milk and butter, when every other food product has gone to almost a prohibitive price? Do you know that millions of our cows are milked and fed by women and children who are practically donating their services? Were these paid a fair wage, thousands of dairymen would go out of business.

We as physicians make a lively stir about ridding the country of medical quacks and patent nostrums, and rightly so. Then why should we open our American medical journal to fight against milk and butter? It looks to me as though there is "something rotten in Denmark." If a straw vote were taken among the physicians of America, oleo would stand a poor showing. Of all organizations the medical profession should be the last to abet the cause of so gigantic and fraudulent a substitute for our most essential food products.

While I am not in the dairy business, further than to supply our own wants, selling neither milk nor butter, as I never have and never expect to, yet I was raised on a farm, and am a subscriber to six or eight of the best farm and dairy papers. I am in a position to know something of which I am speaking.

Louis J. Belknap, M.D., San Jose, Calif.

[Comment.—If our correspondent has read the editorial columns of The Journal with care he cannot have failed to notice that The Journal has again and again referred to the important place which milk deserves in the dietary of man. It has pointed out that milk contains ingredients which are unique in that their physiologic value cannot be measured in terms of calories or grams of protein, fat and sugar. The added importance of milk is expressed in its content of lime salts and growth promoting substances, which children in particular are likely to fail to obtain in adequate abundance when milk is not supplied to them in sufficient amounts. The Journal cannot, however, agree with our correspondent in his implication that the use of oleo fats or other naturally occurring oils constitutes a crime or menace, or that these edible products are not to be classed as human foods. They need not, and obviously should not, exclude milk, butter and cream from the diet in the sense which has been intimated; yet they can be and are wholesome, digestible and nutritious fats. Milk and its products have this place in the dietary; the other edible fats and oils also have a defensible place in the ration. To deny this is to deny both experience and scientific observation.

The Journal never has advocated the coloring of any natural fat, whether it be butter or oleo. Indeed, it would welcome the exclusion of artificial colors from all foods, including butter, when deception is practiced thereby.

Perhaps there is "something rotten in Denmark" which The Journal has not detected. It may be in the nature of blind prejudice on the part of those who fail to distinguish between fact and fancy in food values; who fail to read fairly or intelligently and interpret the contributions of science and the dictates of experience accordingly; who, in the heat of unwarranted passion attempt to replace argument by innuendo.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

METRIC SYSTEM FOR ARMY PRESCRIPTIONS

To the Editor:—Can you inform me whether the metric system is to be used exclusively in the Medical Reserve Corps as it is in the regular Medical Corps of the Army? If it is to be so used, it would appear advisable that the metric system should be introduced into the civil hospitals that have undertaken to train graduates for the service.

Torald Sollmann, M.D., Cleveland.

Answer.—According to the Manual for the Medical Department, Section 240: "All prescriptions will be written in the metric system." This is the form of the Army prescription blank:

.... *191....*
Station ....
For ....
Gms. or Cc.
℞ |

....
Surgeon, U. S. A.
No. ....

On the back of each pad of prescription blanks is a table for converting the apothecaries, to the metric system. When prescriptions are written according to the apothecaries' system, it is customary for sergeants in charge of the prescription department of the dispensary to transpose the figures to the metric system.

ALLOWABLE DEDUCTIONS ON INCOME TAX RETURNS

To the Editor:—In The Journal, January 26, page 259, you answer a query concerning allowable deductions on income tax returns. The special question which I am interested in was the second clause of your answer and especially under sub-division "A" which reads: "If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (A) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession." These conditions describe my own case. I myself own the house which I occupy, and my office room is exclusively for my business purposes. I have understood that the ruling had been up to this time that a physician could not make deduction for such conditions as we have just described; but after reading this ruling, I went to the local revenue office and asked if this were true, but the Deputy Collector asserted that it was not and stated most positively that no such deduction would be allowed.

May I ask, therefore, if you are sure that your statements in the printed reply are correct, and if so, would you mind giving, if possible, the source of the opinion, and the date of the ruling, in order that I may present such data to my local revenue collector? If you can give me this definite information I should appreciate it and will thank you for it in advance. The time is short as our final reports must be in before April 1.

CHARLES S. BENNETT, M.D., Newark, N. J.

ANSWER.—The foregoing letter was submitted to the Collector of Internal Revenue in Chicago, who states that the decision quoted in our correspondent's letter is correct. This means that a part of our answer—that under "(*a*)" in paragraph 2—published in THE JOURNAL of January 26, was wrong. The complete paragraph in the answer was:

> 2. The department has ruled on this subject that expenses of an office of a physician maintained separately from his residence, including amounts paid to employees for care of the office, telephone service, etc., can be deducted as expense in his profession. If a physician has his office in his home, setting aside a separate room or rooms for that purpose: (*a*) If he or his wife owns the home, he may deduct as a necessary expense in his profession the reasonable rental value of such room or rooms occupied by him solely in connection with his profession.) If he rents his home, he may deduct such proportionate part of the itire rent paid as the space occupied by him exclusively in connection ith his profession bears to the entire premises rented.

The logic of this decision is apparent after a little thought. The following paragraphs are of special interest to physicians at the present time. They are quoted from the Income Tax Primer, prepared by the Bureau of Internal Revenue of the Treasury Department.

> A physician may claim as deductions the cost of medicines and medical supplies used by him in the practice of his profession, expenses paid in the operation and repair of an automobile used in making professional calls, dues to medical societies and subscriptions to medical journals, the expenses of attending medical conventions, the rent paid for office rooms and the hire of office assistants, the cost of the fuel, light, water, telephone, etc., used in such office rooms. Amounts expended for books, medical supplies, and surgical instruments of a permanent character are not allowable as deductions.
>
> If a physician . . . rents a home and uses a portion of same for professional or business purposes, may any portion of the rent paid for that home be claimed as a business expense?
>
> Yes, the proportion of the rent paid which is properly chargeable to the number of rooms so used may be claimed as a deduction.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

COLORADO: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

IDAHO: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

ILLINOIS: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

MINNESOTA: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW MEXICO: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

OKLAHOMA: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

Monterey, Mexico, Medical School

Physicians claiming graduation from a medical school at Monterey, Mexico, have applied for licenses before various state licensing boards. Inquiry in regard to this college brings the following reply from the consul general, P. C. Hanna, now at San Antonio, Texas, who states that he has resided eighteen years in Monterey:

> I have never heard of what might be properly called a medical school in Monterey. It is true, however, that some young men studied medicine under the direction of the State University, and the old Gonzales Hospital was the headquarters of the class studying medicine. I know of no institution having been organized recently that could properly be recognized as a medical college.

Book Notices

THE CONDUCTION OF THE NERVOUS IMPULSE. By Keith Lucas, Sc.D., F.R.S., Fellow and Lecturer of Trinity College, Cambridge. Revised by E. D. Adrian, M.B., M.R.C.P. Cloth. Price, $1.50 net. Pp. 102, with 22 illustrations. New York: Longmans, Green & Co., 1917.

In the first chapter of "The Integrative Action of the Nervous System," Sherrington enumerated eleven salient "characteristic differences between conduction in nerve trunks and conduction in reflex arcs" (the central nervous system). In the present volume, Lucas has made an attempt to gain an insight into conduction in the central nervous system by an analysis of analogous phenomena in conduction along peripheral nerves with the hope that the remarkable and puzzling phenomena so characteristic of the activity in the complex central nervous system might find a ready explanation in terms of what can be learned from a study of the phenomena occurring during conduction along the nerve of a more simple nerve-muscle preparation. In Lucas' own words: "The question I wish to discuss is not why the nerve conducts, but how it conducts, and how far the phenomena of conduction in a peripheral nerve may be made the basis of the understanding of conduction in the central nervous system."

Having outlined the general problem, he indicates (Chapter II) the principle of the method used as a measure of the intensity of the nervous impulse. This is followed by a discussion, fortified by experimental proof, of the "all or non response" of nerve fiber—invariably the result of a minimal stimulus (Chapter III). Finding that the intensity of the nerve impulse after passing through a narcotized area ("region of decrement") recovers in full its original intensity when it emerges into a tract of normal nerve (Chapter IV), he discusses the nature of the nervous impulse, which, he decides, chiefly on the basis of Tashiro's work, depends for its progression on a local supply of energy from a source distributed along the nerve, and for its conduction, not on the intensity with which it is initiated, but on the conditions it encounters during its progression. Chapters VI to VIII deal with the alterations of nerve by the passage of a nervous impulse, namely, the "refractory period," during which the nerve loses its excitability and conductivity, and the "supernormal period," which follows the period of recovery from the "refractory period," characterized by an increased excitability and conductivity of the nerve.

Having established these fundamental phenomena of nerve fibers when thrown into activity, the author discusses "summation" of stimuli in central and peripheral tissues, develops the problem most interestingly, and ends by adducing experimental proof for the view that "summation" in peripheral tissue depends on the development of the supernormal period, though he is not satisfied that the question is absolutely settled (Chapters X and XI). In a similar manner he attempts, by analyzing the phenomenon of "apparent inhibition" as it occurs in peripheral tissues, to throw light on "inhibition as a characteristic phenomenon of the central nervous system (Chapter XII). He finds that this inhibition relates, among other things, to the refractory period and to the fact that the fatigued junctional tissues conduct with a decrement.

The last chapter (Chapter XIII), by Adrian, reviews the facts that the two "most important phenomena of reflex-conduction, namely, summation and inhibition, can be reproduced in the isolated muscle nerve preparation, and that in this case they depend on a very simple mechanism." Based on the knowledge gained from a study of these phenomena, he discusses the probable explanation of irreversibility of direction of the nerve impulse, fatigue, after discharge, and expresses the hope that further work on the simple nerve muscle preparation will reveal the mechanism involved in these phenomena so characteristic of the central nervous system.

The lucid presentation of this difficult subject is most gratifying. The chapters are printed, on the whole, as delivered in the form of lectures in memory of Page May at University College, London, in the spring of 1914. The untimely death of Keith Lucas as the result of an aeroplane accident left the manuscript in the hands of his co-worker, Dr. Adrian, who revised the text, added the last chapter, and who, it is to be hoped, will continue the magnificent work of his associate and teacher.

Injuries of the Face and Jaw and Their Repair, and the Treatment of Fractured Jaws. By P. Martinier, Professor to the Dental School of Paris, and Dr. G. Lemerle, Professor to the Dental School of Paris. Translated by H. Lawson Whale, M.D., F.R.C.S., Captain R. A. M. C. T., The Oral Department No. 83 General Hospital, B. E. F. Cloth. Price, $1.75. Pp. 345, with 168 illustrations. New York: William Wood & Co., 1917.

In his foreword the translator says, "It may be justly claimed that during the war no branch of surgery has emerged from oblivion and neglect to a position of insistent importance to a greater extent than facial restoration." This statement is well recognized by the oral surgeon and by some general surgeons. This book is the most comprehensive single work on oral and facial prosthesis that has yet appeared. As the title indicates, it deals with immediate prosthesis for the prevention of disfigurement due to injuries, or following deliberate surgical procedures, such as resection of the mandible or maxilla; also to remote prosthesis for the purpose of overcoming disfigurements that have resulted from cicatricial contraction prior to the insertion of permanent prosthesis; nasal prosthesis to cure depressions due to injury or syphilis, and nasal prosthesis for complete restoration, when lost by disease or otherwise. Plastic prosthesis, such as paraffin, very rightly is not held in high favor by the author. Obturators for cleft palate receive due consideration, as does the artificial larynx. Fractures of the mandible and maxilla are quite fully discussed. The authors seem to have overlooked the fact that certain methods, given priority in their book, were fully described in American literature somewhat earlier than the dates they have recorded. The book is fully illustrated.

Medicolegal

When One's Former Physician Is His Medical Examiner—Evidence

(McGinty vs. Brotherhood of Railway Trainmen (Wis.), 164 N. W. R. 249)

The Supreme Court of Wisconsin says that this action was brought by the plaintiff, as beneficiary, on a policy of insurance, issued by the defendant, on the life of her son. It appeared that the examining physician, a Dr. O'Neill, had treated the insured as a patient in 1911 until July, but that he was not a patient in September, at the time of making the application for the insurance. Dr. O'Neill had also made out the certificate of the death of the father of the insured. If, as contended by the defendant, either the father died from cancer, or the insured had syphilis at the time of making the application, the warranties in the application were false, and avoided the contract. If made by the connivance of the medical examiner with the insured, the defendant was clearly entitled to show such a situation. Although the provisions of Section 4202s, Wisconsin Statutes, make any such report by the medical examiner binding on an insurance company, even if applicable to an insurer like the defendant, the situation would clearly come within the proviso of that section, that there shall be no such estoppel if the report was procured by or through the fraud or deceit of the insured.

It being an uncontradicted fact that at the time of the making of the application for the insurance the relationship of physician and patient no longer existed between Dr. O'Neill and the insured, and that the visit to the physician at that time was not for the purpose of treatment, the privilege of Section 4075, Wisconsin Statutes, making information obtained by a physician for the purpose of treating a patient confidential, did not apply. The insured, having of his own volition obtained, at a time when he was not a patient, the statement of a physician who then had, as the patient was bound to know, knowledge as to his former health and condition, and then having joined with such physician in making material representations to the defendant, on which the policy in suit was issued to him, must be held to have effectually waived any provision of the statute in question, if it were otherwise applicable. He was in effect requesting the physician to testify to such assertions, and could no more shut out legitimate and proper examination, made to determine whether or not the particular assertions were true, than if the physician were called on his behalf as a witness and asked on direct examination the same questions as to whether or not, at the time he made the certificate attached to the application, the statements therein contained, to the effect that the insured was in good health and had not had any venereal disease, were false. That the knowledge as to the existence of any such disease might have been obtained when the relationship of physician and patient did exist did not affect the situation at the time th insured obtained the certificate of the physician, any mor than if the insured at such a time first informed the medica examiner of the existence of any disease so concealed by them both from the defendant. Moreover, the insured having voluntarily published by his application the fact that he had been to Dr. O'Neill for treatment and that such treatment had been for the disease called la grippe, this was a waiver of any privilege, and the doctor should have been permitted, therefore, to answer questions, if the effect thereof would tend to negative the statement that such treatment had been for la grippe. But correspondence passed between Dr. O'Neill and the defendant was properly excluded, on account of being the declarations of the physician to the insurance company, in no wise binding on the plaintiff beneficiary, which could not be received as independent evidence of any fact.

The certificate of death of the father of the insured, made by Dr. O'Neill, and stating that the cause of death was an injury to the head, was but prima facie evidence and subject to attack, and the maker should have been permitted to testify, if such was the fact, that the injury referred to was a cancer.

Requirements of Physicians Issuing Prescriptions for Opium

(United States vs. Reynolds (U. S.), 244 Fed. R. 991)

The United States District Court in Montana says that the Harrison Narcotic Law (act of Dec. 17, 1914) requires nothing of physicians issuing prescriptions for opium save that the physicians be registered and that the prescriptions be signed by the physicians and dated as of the day of such signing. By giving a prescription, the physician does not "dispense" opium, in the sense of the word as used in this law. As therein used, "dispense" relates to actual delivery of the drug by the physician to the patient, from the former's office supply, generally, though not excluding other actual delivery. As the defendant was not charged with having failed so to register or so to sign the prescription, he was not accused of any offense or violation of this law. In this law there is nothing prescribing quantities or forbidding prescriptions for the drug in any quantity. Any attempt to find it therein by construction or implication does violence to the elementary principle that, when legislatures undertake to create offenses, it must be by language clear and definite, making it obvious to ordinary intelligence that by certain conduct an offense, and the offense denounced by statute, is committed. Hence such construction or implication is never permitted. The defendant, charged with giving a prescription for and so dispensing pounds of opium, was not charged with any offense known to the law. Demurrer to the indictment is sustained.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, CHICAGO, JUNE 10-14.

Alabama State Medical Association, Birmingham, April 16.
Am. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
American Orthopedic Association, Washington, D. C., April 22-23
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Georgia State Medical Association, Savannah, April 17-19.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25
Michigan State Medical Society, Battle Creek, May 7-9.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
North Carolina State Medical Society, Pinehurst, April 16-18
South Carolina Medical Association, Aiken, April 16-18.
Tennessee State Medical Association, Memphis, April 9-11.

CHICAGO MEDICAL SOCIETY

Meeting held March 6, 1918

Dr. Charles E. Humiston in the Chair

SYMPOSIUM ON MEDICAL PROBLEMS CONNECTED WITH THE DRAFT

1. From the Standpoint of the Ophthalmologist

Major William H. Wilder, Camp Zachary Taylor, Louisville, Ky.: The newest manual of instruction for medical advisory boards, Form 64 of the Provost-Marshal-General, says, "Reject all registrants with the absence of one eye and when there is no doubt they are totally blind in both eyes." Be sure the registrant has two real eyes, for glass eyes are really deceiving and sometimes get by. Three such men appeared before the review board at Camp Zachary Taylor. In one case the local examiner had reported vision 20/20 in a glass eye. If good daylight is not available, be sure the Snellen chart is well illuminated by an electric lamp of at least 20 candle power, above or at the side of the chart, and hang the chart in such a background that there will be no disturbing factors, such as placing the chart with a window just behind it, or you will get a lower degree of vision than the applicant really has. Some men who desire to deceive have been coached not to read below the large letter at the top of the card. To avoid being misled by this, cut the card and paste it together with a cloth hinge, hanging it up so that the first line visible is 20/100. If he cannot see this until led up to 10 feet, he will have vision of 10/100 or 20/200. Many men have been sent to the board of review who could read the top line and would not read below that. They would read the first line after the chart was cut as described.

Be suspicious of all men who are uncertain that they see, peering around as though to locate the chart, trying to see a letter, especially if the sight of both eyes is poor and there is no sign of external trouble. Test them with type at the ordinary reading distance and they will show great variation. If feigning poor vision in either eye they may be caught in some other way. Have them remove the coat and hang it on some inconspicuous nail; or when stripped, watch to see if they avoid small blocks of wood on the floor.

Although, according to the latest regulations, local boards may accept registrants for special or limited military service without reference to the advisory board, unless the local board examiner is skilled in ophthalmology tests it would be wise to refer to the advisory board men that do not come up to 20/100 and 20/40 in either eye.

Formerly the regulations provided that men suffering from asthenopia should not be accepted; but the new regulations make no mention of this. Many men of nervous type may have better vision than 20/100 and 20/40, but with hyperopia and astigmatism which produce headache and eyestrain and other signs of asthenopia which are intensified without glasses. Some suffer even with glasses. They would be more poorly qualified for military life than would be one whose vision is no better than 20/60 but with no eyestrain. I have seen such men come who should not have been sent. They are not as good as men with congenital amblyopia in one eye. The congenitally blind may have poor central vision, 5/200 or 10/200, but a good peripheral visual field which still gives a good degree of sight. Indeed, the individual may never have known of the defect and may do the most intricate work without inconvenience, but must be rejected; but the one with the asthenopia and vision up to requirements may be accepted if the examiner is not careful.

There is a rule that those with trachoma are to be accepted pending the results of treatment. Most specialists on the eye are of the opinion that it is contagious in its active stage, and is dangerous; that it is very obstinate to treat, and while it may seem to improve and there may be an apparent cure, it is very liable to recurrence on some slight irritation of the eyes and may become a menace to those around. For these reasons the regulations formerly prescribed trachoma as a cause of rejection. In Camp Taylor, with men from southern Indiana, Illinois and eastern Kentucky, we saw considerable trachoma, and the review board sent home 270 of such men in 65 per cent. of the first draft sent to that cantonment. Thirty or forty of these were doubtful cases, but the board dismissed the men rather than take the chance of spreading the disease. In the other cantonments not so many trachoma cases were seen, but many men with trachoma were sent to Camp Taylor on account of the failure of physicians to recognize it

The idea went around that trachoma would be rejected, and there were instances of deception. In one, phenol (carbolic acid) was rubbed into the eye, in another ordinary soap, and ordinary dirt from the camp in another. These men were arrested, court martialed, dishonorably discharged from the service, and imprisoned for three years.

The ophthalmologist in military service must cure inversion and eversion of the lids, ptosis, trachoma, chronic dacryocystitis, pterygium and strabismus. Some of these are simple enough, while others are not easily remediable.

2. From the Standpoint of the Internist

Major Ernest F. Irons, Camp Custer, Battle Creek, Mich.: I doubt if many realize the enormousness and the manifold angles of the problem we have on hand in getting men into the service and caring for them after they are in. In most of the cantonments there are not above two Regular Army surgeons in the medical department. The entire examination of the soldiers is in the hands of the Medical Reserve officers who have only recently come from civil life and whose attitude need not be and should not be considered out of harmony with that of physicians still in civil life.

In discussing the causes of rejection at the present time I think we must carefully distinguish between the rejections made under the original regulations promulgated last August and adhered to by the Army surgeons in September, October and November, and the regulations published recently in Form 64 of the Provost-Marshal-General's office. Under the old regulations the attitude of the regimental surgeons and the special boards has been to follow orders as nearly exactly as possible. Under the new regulations a problem has been created by the acceptance of a large number of men who would previously have been rejected. This problem will have to be met and I have no doubt will be met by the authorities. It removes another difficulty, however, and that is one which made necessary the returning to civil life of soldiers we would prefer to keep in the Army in the place provided for them. Up to the present no place has been provided, and in order to keep the soldier in his regiment he must be able to march and drill and shoot; otherwise he is not much good. The quartermaster's corps has been regarded as a soft job where a man should be sent with something the matter with his heart or a stiff shoulder. Of course there is much physical work in the quartermaster's department, and the quartermaster should not carry all the wrecks of the camp.

The new regulations also remove another difficulty. Heretofore the Army surgeon and the reserve officer have been hesitant about operating on the soldier for hernia, because if that soldier should desire to leave the Army shortly after the operation, all he formerly had to do was to complain of pain in the scar. That was an excuse for continued shirking of his work. One loafer in a company who is continuously put on light duty spoils the morale of the whole company. With the new regulations under which everybody will be operated on, painful scars will not be deemed an excuse, and means will be found to cure them.

A point of peculiar medical interest is in relation to heart lesions. The textbooks and the Army recruiting statistics of previous years have attempted to show that mitral stenosis is a relatively rare lesion. Many of us have been skeptical about that statement in private life, and when we come to examine the statistics in regard to soldiers, mitral stenosis stands at the top, with mitral regurgitation and mitral regurgitation combined with stenosis next, and aortic lesions far below. I am aware of Cabot's statement that we should speak of mitral disease and it has a great deal of truth. Several things account for this predominance of mitral stenotic lesions. As the average physician encounters it, this lesion is not so often recognized as mitral regurgitation. Its recognition is more difficult than other lesions. In ordinary circumstances the fault is not a severe one; there is little or no enlargement and therefore little displacement of the apex. Many persons with these lesions go through life and die of something else, provided they live a quiet life. Many soldiers will tell you that some years prior they had occupations that required a considerable amount of physical effort, but in recent years they had more sedentary occupations—clerical positions and the like. They have gravitated into occupations suited to their physical ability. When they are taken out of their quiet lives and put into the Army where they must drill and go through regular physical exercise, they at once begin to show symptoms of heart lesion which they would not have shown, perhaps, for years in their accustomed occupation. Mitral regurgitation is more easily recognized, because of its frequently loud murmur. Care must be exercised that no diagnosis be made of cases with sharp first sound or presystolic murmur as mitral stenosis, as these patients may have hearts that have no stenosis. Such symptoms come very often in soldiers who have small hearts and who, when put to severe physical exertion, develop irritable hearts. We have seen practically no decompensated hearts. The soldiers are pretty well picked over and cardiac lesions eliminated at the beginning.

Another problem is how to protect the Army from the civil communities. Much is being done along venereal lines by the establishment of extracantonment zones and an efficient semisecret police. Another problem will confront us more acutely soon, and that is the protection of the Army from the ordinary contagious diseases which are allowed to go on in the civil communities—scarlet fever, measles and diphtheria. The Christmas vacation gave us almost as much trouble as the bad weather. The soldiers came back with diseases that we did not have before. I am firmly convinced that we could take 30,000 or 40,000 troops, put them in charge of a well organized medical department, keep them isolated a month or six weeks, and eliminate contagious disease. We could trace the reinfection of commands to returned soldiers. In the years after the war they will return to civil life trained in respect for law, and then only will the civil communities begin to put into force laws for the control of contagious and other diseases.

3. The Soldier's Foot

Major John Ridlon, Chicago: The new manual of instructions has eliminated for the examining boards practically all the problems concerning foot conditions, and has exemplified the first thing that a man learns in the Army, perhaps, to "pass the buck."

There are three things that are of prime importance to the soldier: first, his foot; second, his teeth, and third, his equipment. Unless the soldier has good feet he cannot get there, and unless he has good food he cannot stay there. If a man has the best of rifles and a thousand rounds of ammunition he is of no earthly use to the Army if he is five miles behind the rest of the Army. So the importance of good feet is a very vital one.

Early in my experience I found in one of the cantonments where the division surgeon was the final authority in regard to all medical matters that he wished to reject an enormous number of foot patients that I, an orthopedic surgeon of many years of experience, believed should be accepted. I went to the next cantonment and found that the division surgeon with the same authority wished to accept patients that I would reject. I wrote to my chief in the Surgeon-General's Office, "Get your division surgeons in line so that a man who is rejected at Camp Taylor cannot be accepted at Camp Sherman. There must be some standard." Nothing was done until the new manual of instructions was brought out, and now the decision is simply passed from the local examing boards to the camp. We were told in the orthopedic department to accept men with weak feet and properly modify their shoes and train them by proper foot exercises until their feet were made strong; that they should be taken from the active duty of drill and long hikes, etc.; but what can one orthopedic surgeon do in a camp of 30,000 men in a hospital of 10,000 beds, with a multitude of other duties and no proper equipment for carrying out the work, no cobbler to modify the shoes, and a delay of four months in filling a requisition for cobbler's equipment, which when it arrived lacked most of the essential articles? The work cannot be done.

We are told by the regulations to accept men with clawfoot. I have never seen a man with clawfoot, though treated by the most skilful orthopedic surgeons or any other kind, that was made by one, two, three or four operations one-tenth part good enough for a soldier.

A case of congenital clubfoot can never be made good; clawfoot, tuberculosis of the tarsus, and ostearthritis cannot be made into good feet, but we have no option but to treat them.

As to the flatfoot, most practitioners think the high arch is the ideal foot and that the low arch should be rejected. The opposite is true. The high arch does not stand punishment as well as the foot that has an abnormally low arch.

4. From the Standpoint of the Appeal Board

Dr. M. L. Harris, Chicago: The appeal board is th court of last resort until the soldier gets into the cam The board occupies a different position from the other board It does not determine, except indirectly, who shall go to wa its function is to determine who shall not go. It has put to it all of the troubles that come to the other board, eith real or imaginary. Most of them are imaginary. The appe board today occupies a little different position from what did two months ago; in other words, it occupies a differen position in relation to the second draft as regards medica matters. This refers to the medical side of the appeal boar and not to its other functions. Under the first draft it wa up to the appeal board to reexamine all registrants wh appealed from the local boards. You can imagine that tha was some job, particularly as there was only one medica man on the appeal board. Under the new regulations there are several medical advisory boards in our own community, each composed of a number of experts—specialists in various lines. It is the function of these boards to do all the medical reexamining. It was hoped that these boards would relieve the appeal boards of a great deal of work. We still have hopes, although I am forced to say they are not as high as they were awhile ago. Notwithstanding the fact that the men go before these advisory boards for reexamination, they still have the right to appeal to the appeal board, and it is peculiar of the registrants of this community that they do not sleep on any of their rights.

I hope that no one connected with either the local boards or the advisory boards will think that I am trying to criticize the work of these boards. I am not and do not wish to have it so understood; but I must say that from the appeals that are coming to the appeal board there is considerable dissatisfaction with the work as it is being done. This dissatisfaction, or this unsatisfactory work, we will say, is not the fault of the members of the board. The advisory boards, particularly, went at the work without any knowledge of what they had to do. They had to make a great many examinations before they had any rules or regulations governing the work. The cases were dumped on the advisory boards by the hundreds, and the advisory boards attempted to examine from 120 to 300 men in an evening, which I must say from some considerable experience is absolutely impossible and an injustice to the men and to the board making the examination. These men are either sent up to the board by the local boards or come to them by request of the individual for the purpose of having a more thorough examination made than can be made by the local board, because the local boards are hampered for time, and they are not composed of specialists. There may be only one medical man on the local board. The advisory boards are supposed to have all the time necessary to make a thorough and complete examination. It is evident that a thorough and complete examination cannot be made of 300 men in an evening; in fact, it is impossible for the board even properly to fill out the three blanks which they are obliged to fill out in the evening's work. As a result much of the work coming up to the appeal board has not been thoroughly done. The appeal board is not supposed to reexamine any of these appealed cases. It is supposed to pass merely on the findings of the local and advisory boards; but if the advisory board does not put down any findings, I do not know how the appeal board is going to pass on them. Many of the papers that come to the appeal board after having passed through the advisory board are practically a blank.

What I wish to impress on the local board and the advisory board is that they must make some record or findings on which the appeal board can form an opinion. One great trouble has been the lack of cooperation between the advisory boards and the local boards. The advisory board started in late without opportunity to consult the rules and regulations. How could they familiarize themselves with the work they had to do without opportunity to come in contact with the local boards? Therefore, without cooperation between the boards they are not to be blamed for not knowing just what to do. In many instances they have acted contrary to the rules, which came out after they had started the work.

There are many rules in this manual of instruction for medical advisory boards, and I am free to admit that some of the rules, I think, are not right. Perhaps to the advisory boards the rules are not right, but that is not their business. The rules are here and it is up to all men to follow the rules. If the advisory boards fail to follow the rules by acting, perhaps, on their own judgment and the record comes to the appeal board, you will find that the appeal board will try to act according to the rules, and therefore they may be overruled. I would take great exception to the interpretation put on the rules read by Major Ridlon, and I will show you why some medical advisory boards make mistakes. Dr. Ridlon read, "Accept all foot and ankle lesions if they do not interfere with wearing an ordinary shoe." The rule says if they cannot wear an ordinary shoe do not accept them; and if it interferes with walking, do not accept them. And the same in regard to weight-bearing power. If they cannot carry pack, do not accept them. It tells the local boards to reject no foot cases. Send them to the advisory board. If they cannot carry weight, do not accept them. Then Major Ridlon read, "Accept for general military service all lesions of the foot and toes irrespective of present function." When? "If, after examination, it is found that they have a remediable defect." What does the rule say in regard to remedial defect? You do not accept them. That is a deferred classification. They do not go at all unless and until the Surgeon-General says so. If the man has hammertoe and cannot walk, or clawfoot, you do not take him, you classify him fit for general military service after being cured of his defect. If you cannot cure him you do not accept him at all.

DISCUSSION

William Allen Pusey, Chicago: Dr. Harris has made my speech. I have been impressed with the discussion that the point of view of many doctors is different from that of the men who wrote the manual. Their view has been rather this, How can we avoid sending to the camp men who should not be sent there? while the point of view of the authors of this manual has been, How can we avoid allowing men to escape who really ought to go? And this is a very different problem.

I can speak more particularly of skin and venereal diseases, which was the subject assigned to me. I was asked to draw up regulations for these fields for the local boards first. They were not allowed to exempt anybody who was not incapacitated permanently by skin diseases, and I presented practically this regulation, that nobody should be rejected for skin disease unless of long duration, so severe as permanently to incapacitate, or so disgusting as to make it impossible to have ordinary social intercourse. The same applied to ulcers, syphilis and gonorrhea. These men were not to be rejected except when the disease had already produced permanent incapacities to prevent them from doing their military duty. That does not require expert dermatologic knowledge or expert knowledge of venereal disease. A man with ordinary common sense should be able to act under these requirements.

When it came to the regulations for advisory boards and cantonment boards, I was asked this question: What diseases of the skin are there that should unquestionably incapacitate a man for military service? There are about 275 or 300 skin diseases, and I went through that list with care, time and again; and the only ones that I believed would in any cases unquestionably meet the requirements were actinomycosis, dermatitis herpetiformis of long duration, epidermolysis bullosa, universal dermatitis of long duration, glanders, multiple hemorrhagic sarcoma of the skin, mycosis fungoides, and pemphigus of various forms.

The regulations were drawn up by a group of specialists. They were finally brought together and edited by three members of the board and put into their present form. I agree with Dr. Harris that it is likely in most cases, if the regulations are studied carefully with a sympathetic desire to understand, and not with the capacity for finding defects, that the reader will find a basis of interpretation of the cases.

Dr. Wilder brought up trachoma, which is in Class B. Some oculists have failed to note that trachoma patients must be cured. Until they get well they stay at home. It was recognized that they were not men for mixing with soldiers while they had their trachoma. The question of remediable operation came up, and the question of painful scar; and if I followed the surgeons correctly, it was regarded as a myth that might be disregarded.

Dr. Ridlon brought up the question of failure of supplies. I have been impressed with the fact that if a man has a capacity for finding difficulties he can find them all the time. In one camp the genito-urinary specialist has a dark-field apparatus, a cystoscope, mercurial ointment, arsphenamin, etc., and in another place he literally has not a pair of scissors. My experience has been that when one cannot get anything or do anything, it is always the fault of some one on the ground. Most of the medical men are succeeding admirably in meeting many difficulties.

Major J. M. Dodson, Chicago: If I were to say anything it would be a word in favor of the advisory boards. I am not at all surprised at the difficulties of which Dr. Harris has spoken. I am not as pessimistic as he is concerning the future. The members are training themselves, and now that they have found themselves and are getting into touch with the local boards they are doing more efficient work. Most of the difficulties have grown out of the common fault into which our nation was forced, but which we as individuals fall into, and that is the common fault, "Haste makes waste." There was a rush to get things done. It is easy enough to see now that this whole matter would have moved more smoothly if the government had called a halt three weeks ago and said to the advisory boards, "We have made a manual of instructions in which we have made up our minds definitely as to certain things we want to do," and then proceeded on that basis.

The major burden of the whole draft falls on the medical profession. I think we are glad of it and agree that it is a great thing and we should be proud that the medical profession can render this magnificent service to our country at this time. There are some men who feel that we are always the "goats"; that we do more charity work and are expected to do more work with less appreciation than any other group of men. There is another group of men who are proud to render service, and may I say that the men in the medical profession who have made it a proud thing to belong to have not been men in the first group who were afraid of being imposed on?

Major John Ridlon, Chicago: I want to plead guilty to the charge that I have never studied the manual in its entirety and only read over the part of it relating to the orthopedist; also to Dr. Pusey's criticism that I have a capacity for finding difficulties. But let me assure Dr. Harris that if all the foot complaints that come to the base hospitals in those cantonments are rejected; if all the men who come to the exemption boards are placed in Class B, 60 per cent. of those complaining of their feet will stay at home, and it is a very easy thing to complain of your feet. If they are not to be sent until they are cured, who is to compel a man who does not want to go into the service, to be cured? I know of no one who can compel him to.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

February, 1918, **1**, No. 2

1 Hole at Macula. C. A. Burkholder, Camp Sherman, Ohio.—p. 81.
2 Glaucoma from Absorption of Senile Cataract. H. Gifford, Omaha.—p. 83.
3 Injury to Eyes from Lightning Stroke. W. C. Posey, Philadelphia.—p. 88.
4 Membranous Conjunctivitis of Over Four Years' Duration. H. S. Stark, El Paso, Texas.—p. 91.
5 Corneoscleral Trephining. C. A. Clapp, Baltimore.—p. 94.
6 Melanoblastomas of Eye. J. Forman and C. C. Hugger, Columbus.—p. 97.
7 Rôle of Ductless Glands in Ophthalmology. F. R. Spencer, Boulder, Colo.—p. 100.
8 Relation of Retinitis Pigmentosa and Allied Conditions to Ductless Glands. E. L. Jones, Cumberland, Md.—p. 107.
9 Successful Removal of Bullet Imbedded in Orbit Ten Years. O. Orendorff, Canon City, Colo.—p. 114.
10 Importance of Temperature Curve for Early Recognition of Intra-Ocular Tuberculosis. H. A. Smith, Delta, Colo.—p. 116.
11 Case of Massive Retinal Exudate. M. Black, Denver.—p. 120.

American Journal of Physiology, Baltimore

February, 1918, **45**, No. 3

12 Physiology of Ascidia Atra Leuseur. Blood System. S. Hecht.—p. 157.
13 *Evidence for Enzymatic Basis of Heart Beat. M. M. Moore, New Brunswick, N. J.—p. 188.
14 *Vasodilator Reactions. I and II. R. Hunt, Boston.—pp. 197, 231.
15 *Influence on Thyroid of Anastomosis of Phrenic and Cervical Sympathetic Nerves. D. Marine, J. M. Rogoff and G. N. Stewart, Cleveland.—p. 268.
16 *Postural Activity of Stomach. E. G. Grey, Baltimore.—p. 272.
17 *Rôle of Catalase in Shock. W. E. Burge and A. J. Neill, Urbana, Ill.—p. 286.
18 Secretin. Its Influence on Number of White Corpuscles in Circulating Blood. A. W. Downs and N. B. Eddy, Montreal, Canada.—p. 294.
19 *Effect of Epinephrin on Blood Flow in Muscles. C. M. Gruber.—p. 302.

13. **Enzymatic Basis of Heart Beat.**—Loeb long ago suggested that the heart owes its *rhythmicity* to the constant fermentative production of certain compounds in the automatically active cell. *If this idea is correct,* the curve of the rate of heart beat plotted against temperature should be a typical enzyme curve and the temperature coefficient of the rate of heart beat should show the same variations which that of enzyme reactions do; that is, become smaller with increasing temperature. Accordingly Moore carried out a series of experiments on Fundulus embryo hearts. She found that the changes in the rate of the heart beat of the Fundulus embryo at high temperatures are such as would be expected in case the rhythmical contractions of the heart depend on the velocity of an enzyme reaction. With high temperatures the length of time exposed is an important factor. The longer the *time* exposed, the lower the temperature necessary to bring about standstill of the heart, indicating a temperature coefficient of the destruction of the enzyme. Auriculoventricular block was observed as a result of high temperature. The ventricle is first affected by the high temperature, and finally the auricle and sinus.

14. **Vasodilator Reactions.**—I. The experiments described by Hunt resulted from an endeavor to discover the cause of the marked fall of blood pressure following the administration of certain drugs; they have led to the conclusion that there is present in mammals (and perhaps other animals) a vasodilator mechanism not recognized, or only vaguely recognized, capable of responding with more intense reactions than any of the mechanisms generally recognized and one which may be more perfectly controlled than the latter. Acetylcholin was the vasodilator used in these experiments. Acetylcholin has an intense vasodilator action on the vessels of the skin and of the ear; the action on the skeletal muscles is slight. It dilates the vessels of the penis, of the submaxillary gland and of the spleen; it seems also to dilate the vessels of the intestines and liver. Only slight evidence of a dilator action was found in the case of the kidney and none in that of the lung. The nasal mucosa seemed relatively less sensitive to the vasodilator action of acetylcholin than many other vascular areas. The vasodilatation in all of these cases was diminished or prevented by atropin. As little as 0.000,000,002,4 mg. acetylcholin per kilogram caused a pronounced fall of blood pressure. Acetylcholin injected into the trachea or applied to the surface of the lung, kidney, liver, suprarenal and various muscles was very active in causing a fall of blood pressure; similar doses applied to the surface of the stomach, spleen and small intestine had no effect on the blood pressure.

II. Further study showed that the mechanism involved in the vasodilator action of acetylcholin and related bodies is different from that involved in the action of any of the nerves (posterior root, parasympathetic and sympathetics) to which vasodilator functions have been attributed. It is also different from that involved in the depressor action of epinephrin. This mechanism, although capable of more energetic response than any hitherto described, is not involved in the action of the depressor or of other afferent nerves causing a fall of blood pressure. The only substances found having the same type of vasodilator action as acetylcholin were a limited number of compounds derived from, or closely related to cholin and pilocarpin and colchicin. Atropin and closely related substances were the only compounds found having a pronounced antagonistic action to the vasodilator action of acetylcholin. Pilocarpin diminished the action slightly. Physostigmin intensified all of the action of acetylcholin.

15. **Effect of Phrenic Sympathetic Union on Thyroid.**—The experiments reported on by the authors represent an attempt to repeat the observations of Cannon, Binger and Fitz (1) on the effects of fusion of the anterior root of the phrenic nerve with the cervical sympathetic on the thyroid function in cats. In none of the animals were any symptoms resembling those of exophthalmic goiter observed. In several it was proved by electrical stimulation that functional union had occurred between the phrenic and the cells of the superior cervical ganglion innervating the iris and the nictitating membrane. It was shown in several of the cats that a tonic dilator effect must have been exerted through the phrenic on the pupil of the operated side. This follows from the fact that in animals in which it was demonstrated by electrical stimulation that the phrenic caused dilatation of the pupil, while the sympathetic below the neuroma did not, the pupils on the two sides were equal. In the cat it was proved directly by nerve section that the phrenic was exerting a

tonic dilator effect, for when the anterior phrenic root central to the neuroma was divided the pupil on that side became smaller than the other and remained smaller. In several cats the effect of stimulation of sensory nerves (central end of cut sciatic) on the pupil was noted. Dilatation occurred on the operated side at the same time as on the normal side and in the same degree. In none of the animals was respiratory hippus seen although carefully and repeatedly looked for. If the dilator innervation is due to impulses from the respiratory center, there does not seem to be any obvious reason why a rhythmical change synchronous with the respiration should not be present. The authors state that it was not seen in any of their cats. Exophthalmos did not develop in any of the animals. The thyroids were always approximately equal on the two sides and of the same color on gross examination. Histologically no difference was observed between the thyroid on the operated and that on the normal side. Variations in the weight of the suprarenals were within the normal range.

16. **Postural Activity of Stomach.**—Experiments were carried out by Grey in order to study, in some detail, the postural activity (Sherrington) of the gastric musculature. The following points may be emphasized. The normal stomach possesses a striking capacity for adapting its size to the volume of its contents with only minimal changes in intragastric pressure. This capacity disappears only shortly before the viscus ruptures. Time is an essential factor in the expression of this form of muscular activity—as the rate of change in volume of contents increases, the extent of the postural activity decreases. The extrinsic nerves have nothing directly to do with the postural configuration of the viscus. The mechanism responsible for these changes concerns solely the musculature itself together with the intrinsic nervous mechanism. Pilocarpin, atropin and epinephrin likewise have only an indirect influence on postural activity. They neither increase nor decrease gastric tonus, but, like the extrinsic nerves, serve to regulate the tension of the stomach walls. Excision of the stomach leads to a marked decrease in its postural activity, due in greater part probably to changes in the intrinsic nervous mechanism.

17. **Rôle of Catalase in Shock.**—According to Burge and Neill in the condition of shock, the catalase of the blood and probably of the tissues is decreased. The decrease in the catalase of the blood is brought about by a diminished output of catalase from the liver owing to the lowered blood pressure and probably by a dilution of the blood due to a diffusion of liquid, poor in catalase, from the tissues. The administration of alcohol in the condition of shock greatly increases the catalase of the blood and hence of the tissues by stimulating the liver to an increased output of this enzyme. Since catalase content is so inseparably connected with oxidation in the body, the assumption is made that the decrease in catalase is principally responsible for the decreased oxidation with resulting acidosis in the condition of shock, and that the beneficial effect of alcohol as a stimulant in shock and in conditions of general depression is due to the increase, it causes in the catalase of the blood and tissues with resulting increase in oxidation and decrease in acidosis.

19. **Effect of Epinephrin on Blood Flow in Muscles.**—The research was carried out to determine whether or not epinephrin acted centrally or peripherally in producing vasodilatation in muscles. Gruber found that epinephrin in small doses (0.5 to 2 c.c. 1:100,000 solution) produces active dilatation of the vessels in cats' muscles when the nerves are intact. Epinephrin, in any strength, produced no active vasodilatation in muscles in which the nerves were recently cut. Small doses of epinephrin (1:100,000) slowly injected intravenously produce active vasodilatation in muscles in which the nerves were previously cut and allowed to degenerate from two to ten days. Small amounts of epinephrin (0.5 c.c. 1:100,000) injected intravenously did not produce vasodilatation in eleven experiments in the perfused limb intact with the central nervous system. A fall in blood pressure was obtained in every case showing dilatation somewhere in the vascular system. In perfused limbs large amounts of epinephrin (0.5 c.c. 1:10,000) produced active vasodilatation accompanied by a rapid increase in blood pressure followed by a fall. Gruber believes that the vasodilatation in muscles caused by small amounts of epinephrin is dependent on the tonicity of the vessel wall. Small doses of epinephrin (0.5 c.c. 1:100,000) bring about vasodilatation by their action on the peripheral vasodilator mechanism.

American Journal of Public Health, Boston

February, 1918, 8, No. 2

20 Venereal Diseases and War. W. C. Gorgas, Washington, D. C.—p. 107.
21 Ventilation of Army Barracks. W. J. Mauer, Chicago.—p. 112.
22 Control of Communicable Diseases in Camps. I. W. Brewer.—p. 121.
23 Prophylaxis of Industrial Poisoning in Munition Industries. A. Hamilton, Chicago.—p. 125.
24 What We Are Doing to Prevent Tuberculosis Among Children. L. I Harris, New York.—p. 131.
25 State Health Departments and Municipal Refuse Disposal. E. D. Rich, Lansing, Mich.—p. 135.
26 Practical Uses of Vital Statistics. S. W. Wynne, New York.—p. 138.
27 Comparative Wassermann Tests with Two Antigens. A. I. Van Saun and M. K. Preston, New York.—p. 146.
28 Diphtheria in Court Bibles. H. N. Calver, Winston-Salem, N. C.—p. 148.
29 Theory vs. Practice in Vital Statistics. T. D. Tuttle, Seattle.—p. 150.
30 Bleaching Powder in Place of Permanganate in Fumigation. D. W. Horn.—p. 161.

Archives of Pediatrics, New York

January, 1918, 35, No. 1

31 *Bacteriology of Urine in Children with Gastro-Intestinal Diseases. A. B. Schwartz, Milwaukee, Wis.—p. 1.
32 Comparative Study of Therapeutic Effects of Various Forms of Tuberculins, Vaccines and Serums in Pulmonary Tuberculosis in Children. M. S. Cohen, Philadelphia.—p. 11.
33 *Comparison of Various Tuberculin Tests in Childhood. E. F. Warner, St. Paul.—p. 28.
34 Case of Idiopathic Dilatation of Colon. J. P. C. Griffith, Philadelphia.—p. 36.
35 Value of Wassermann Reaction in New-Born. H. H. Yerington, San Francisco.—p. 40.
36 Case of Congenital Atresia of Small Intestine. F. V. Bogert, Schenectady.—p. 45.

31. **Bacteriology of Urine in Children.**—The sixty-three patients studied by Schwartz represented various types of all the known forms of gastro-intestinal diseases and were generally of a very severe nature as exhibited by the extremely high mortality rate. With few exceptions these patients were under 2 years of age. Thirty-eight, or 60.3 per cent., showed the presence of gram-negative bacilli in their urine. Of those in which the first and second portions of the urine were separately cultured, 21.4 per cent. showed a sufficient number of gram-negative bacilli in the second specimens to constitute a bacilluria. Urethral contamination was almost three times as prevalent in girl babies as in boys, while actual bacilluria was twice as prevalent in girls as it was in boys.

33. **Tuberculin Tests in Childhood.**—In twenty exposed children recently tested by the subcutaneous tests by Warner, eight reacted with 1 degree of fever to 1 mg. of tuberculin. Four of these were discharged patients from the Ramsey County Preventorium and had received tuberculin previously. Excluding these, there were four reactors out of twenty tests, or 20 per cent. A thoroughly conducted subcutaneous test in children under the proper precautions of selection of cases and previous temperature control, together with the history of the case is considered by Warner one of the most valuable, tuberculin tests for the purpose of separating the active from the latent cases.

Boston Medical and Surgical Journal

February 21, 1918, 178, No. 8

37 *Acute Lobar Pneumonia. F. C. Shattuck and C. H. Lawrence, Boston.—p. 245.
38 Recent Treatment of Lobar Pneumonia. T. F. Leen, Boston.—p. 251.
39 Recruiting Notes. H. W. Dana, Boston.—p. 255.
40 Army Surgeon of Other Days. H. D. King, New Orleans.—p. 258.
41 Gonorrhea in Young Male Children; Its Treatment. W. D. Bieberbach, Worcester.—p. 259.

he absence of leukocytes. The protective
erially increased by three series of injec-
tions produce acute protein poisoning.
otective substances within a short time
found in pneumonia patients, at about

Mountain Spotted Fever.—Wolbach
ions of Rocky Mountain spotted fever
to the blood vessels of the skin and
s a characteristic one, an endangeitis
lial cell proliferation, local necrosis
oth muscle and thrombosis. Peri-
of large mononuclear cells (endo-
mon occurrence. Lesions of the large
dy and of the vessels of organs other
nitalia are of rare occurrence and of
t. The general reactions to the toxic
rasite are evidenced by a general increase
content of large mononuclear cells (endo-
phagocytic, and by the accumulation of
lymph nodes and spleen. The cause of
minute parasite previously described in
nkeys, and now proved to be constantly
s of blood vessels in man, monkeys, rab-
s, and in ticks capable of transmitting the

us and Mental Diseases, Lancaster, Pa.

January, 1918, **47**, No. 1

Grouping of Mental Diseases. E. E. Southard,
anic-Depressive Insanity. J. B. Macdonald, Danvers,
cording Brain Weights; Error Due to Inclusion of
id. L. G. Lowrey, Danvers, Mass.—p. 31.

Mental Diseases.—The sequence of men-
provisionally arranged by Southard is as
disease groups (orders): (1) syphilitic,
(2) feebleminded hypophrenosis; (3) epi-
; (4) alcoholic, drug, poison, pharmaco-
focal brain ("organic," arteriosclerotic),
es; (6) bodily disease ("symptomatic");
; (7) senescent, senile, geriopsychoses; (8)
x, paraphrenic, schizophrenosis; (9) manic-
othymic, cyclothymoses; (10) hysteria, psycho-
asthenic, psychoneuroses; (11) psychopathic,
others, psychopathoses. The ending -osis was
e groups to correspond exactly with the end-
certain botanic groups, the so-called orders
Whereas the ending -osis suitably expresses
cters, the ending -ia (as in epilepsia, neuras-
bly indicates generic characters of disease.

Laryngoscope, St. Louis

February, 1918, **28**, No. 2

s Obtained by Tonsillectomy in Treatment of Systemic Dis-
es. D. W. Layman, Indianapolis.—p. 65.
ntation Cyst of Larynx. L. W. Dean and J. B. Gregg, Iowa
y, Iowa.—p. 74.
nosis of Speech Defects. M. K. Scripture, New York.—p. 78.
er Brad in Left Inferior Bronchus. Removal. R. McKinney,
mphis, Tenn.—p. 89.
yema of Ethmoid and Frontal Sinus with Perforation of Inner
all of Orbit. E. R. Roberts, Bridgeport, Conn., and T. J.
arris, New York.—p. 93.
roglossia Lymphangioma; Report of Case. R. D. Sleight and
V. Haughey, Battle Creek, Mich.—p. 99.
opharyngeal Fibromyxoma, Undergoing Sarcomatous Changes.
J. Goldbach, Baltimore.—p. 106.
e Needle for Suturing Submucous Flaps. V. B. Fischer,
Boulder, Colo.—p. 109.
strument for Making Drainage Incision on Floor of Nose, Obvi-
ating Use of Packing Following Resection of Septum. L. Gate-
wood, New York.—p. 111.

Medical Record, New York

Feb. 23, 1918, **93**, No. 8

Malnutrition Among Schoolchildren. Report of Public Health
Committee of New York Academy of Medicine.—p. 311.
Psychopathology of Selections of Vocations. A. A. Brill, New York.
p. 318.

75 *Use of Carrel-Dakin Solution on Service of Dr. J. B. Deaver, in Lankenau Hospital, Philadelphia. J. W. Bodley, W. H. Means and H. E. Knox, Philadelphia.—p. 323.
76 Teeth According to Rabelais. D. W. Montgomery, San Francisco.—p. 327.
77 Primitive Treatment of Disease. J. B. Percival, Paramaribo, Dutch Guiana.—p. 330.

75. **Report on Carrel-Dakin Solution.**—Contrary to many observers the authors believe that the Carrel technic is not a complicated one. It requires no more time, labor or material than the method of treating purulent collections with drainage tubes and irrigations of saline, mercuric bichlorid or phenol solutions. The deodorizing effect of this solution is very important. This has a psychologic effect in aiding the patients' convalescence. The irritating effect of the solution on skin surfaces has been very slight. The authors have abandoned the use of gauze strips saturated with petrolatum and use no protection at all, except when the skin appears hypersensitive, in which case a spray of liquid paraffin is used. The mucous surfaces appear to suffer no more than the skin, as instanced by the use of the solution as a vaginal douche.

Emphasis is laid on the contraindication to the use of the solution in cases in which there is much hemorrhage. This is controlled as well as possible at time of operation and the solution not used until twenty-four to forty-eight hours have elapsed. Other contraindications to the use of the solution are in infections due to the *Bacillus pyocyaneus*, on which it seems to have no effect, and in all classes of wounds after the infection has been controlled, when it is unnecessary and has a retarding influence on granulations. In fecal fistulas the solution is not used, because it has been noticed that patients with this condition suffer with a great deal of discomfort, and at times pain, for three to four hours after the dressing.

Nebraska State Medical Journal, Norfolk

February, 1918, **3**, No. 2

78 Acidosis in Children. F. Clarke, Omaha.—p. 37.
79 Empyema in Children. H. B. Hamilton, Omaha.—p. 41.
80 Diagnostic Value of Cerebrospinal Fluid Examination. M. G. Wohl, Omaha.—p. 43.
81 Present Status of Streptococcus Differentiation. W. C. Becker, Papillion.—p. 47.
82 Presentations and Their Diagnosis. J. N. Campbell, Stamford.—p. 50.
83 Empyema of Nasal Accessory Sinuses. H. B. Lemere, Omaha.—p. 53.

Neurological Bulletin, New York

January, 1918, **1**, No. 1

84 Recurrence of Extramedullary Endothelioma After an Interval of Eight Years. A. V. S. Lambert, New York.—p. 1.
85 *Poliomyelitis with Prolonged Somnolence. F. Tilney, New York.—p. 7.
86 Aphasia; Report of Three Cases. M. Osnato, New York.—p. 11.
87 Case Presenting Thalamic Syndrome. S. P. Goodhart, New York.—p. 22.
88 Description of Summary and Differential Diagnosis Blank. O. S. Strong, New York.—p. 25.
89 Case of Syringomyelia with Differential Diagnosis. O. S. Strong, New York.—p. 29.
90 Case of Acromegaly with Gigantism in Family. M. T. Craft, London, Ky.—p. 32.

85. **Poliomyelitis with Prolonged Somnolence.**—Tilney cites the case of a boy, 4 years of age, who left New York for Liverpool in good health, remaining so for the entire trip across the ocean; he was not even seasick. On arriving in Liverpool he did not feel well. He seemed weak, but had no pain and his body did not seem warm. That evening he was seen by a physician, who looked at his tongue, but made no further examination. On learning he had just arrived from New York, the physician said: "Probably infantile paralysis." Another physician was called the next day, who found the child sleeping, in which condition he remained, not even arousing to take food. There was apparently no elevation of temperature. On the fourth day he was still sleeping. The mother took the child to the hospital and laid him in bed on his right side. Each time she called to see him he still lay on his right side in the same posture, apparently unchanged, even when she called six days later to take him away. He had taken no food during all this time. After fourteen days, the boy made the f

without assistance for six months. He sat up alone for the first time after five months; two weeks later he was able to stand; and has since been gradually improving, the right leg remaining much thinner and softer than the left.

New York Medical Journal

Feb. 23, 1918, **107**, No. 8

91 Demons of Heresy and Demons of Disease in Processes of Thought. J. Wright, Pleasantville.—p. 337.
92 Pericholecystic Adhesions Dyspepsia and Its Diagnosis. G. A. Friedman, New York.—p. 341.
93 Subconjunctival Injections. A. M. MacWhinnie, Seattle.—p. 343.
94 Case of Meningitis Caused by B. Influenza. R. Hills, New York.—p. 345.
95 Hydatid Pyopneumocyst of Liver. M. H. Vegas, Buenos Aires.—p. 346.
96 Treatment of Painful Dysphagia in Tuberculous Laryngitis. R. McD. Lukens, Philadelphia.—p. 353.
97 Thrombophlebitis of Inferior Vena Cava Complicating Varicella. S. A. Blauner, New York.—p. 355.
98 Syphilitic Blood on Surgeon's Fingers in Intravenous Administration of Arsenicals. N. B. Jenkins, New York.—p. 356.

Northwest Medicine, Seattle

February, 1918, **17**, No. 2

99 Alkali Reserve and Hydrogen Ion Concentration of Blood. Methods and Results. H. D. Haskins, Portland, Ore.—p. 35.
100 Nonprotein Nitrogen in Blood in Nephritis. R. Cummings, Los Angeles.—p. 41.
101 Transfusion of Blood by Direct Method. W. C. Speidel, Seattle.—p. 44.
102 Obtaining Blood for Diagnostic Purposes in Infancy from Longitudinal Sinus and Transfusion by Same Route. E. M. Tarr, Portland, Ore.—p. 47.
103 Practical Considerations in Blood Pressure. W. T. Woolley, Seattle.—p. 49.
104 Acne Vulgaris. W. Brown, Tacoma.—p. 51.
105 Clinical Interpretation of Labyrinthine Phenomena in Presence of Suppurative Inflammation of Middle Ear. O. M. Rott, Spokane.—p. 56.
106 Water, Its Scientific Use in Relief and Prevention of Disease. M. E. J. Donaldson, Boise, Idaho.—p. 57.

Pennsylvania Medical Journal, Athens

February, 1918, **21**, No. 5

107 Dysentery and Its Relation to Camp Life. E. R. Whitmore, Washington, D. C.—p. 273.
108 Minor Eye Injuries and Workmen's Compensation Law. L. E. Schoch, Shamokin.—p. 278.
109 Pituitary Tumor—Operation by Transphenoidal Route. F. O. Lewis, Philadelphia.—p. 282.
110 Nonoperative Treatment of Nasal Sinusitis. E. L. Vansant, Philadelphia.—p. 284.
111 Indications for Operation in Glaucoma. W. C. Posey, Philadelphia.—p. 290.
112 Syphilis as Factor in Diseases of Thyroid. T. G. Simonton, Pittsburgh.—p. 293.
113 Corneal Ulcers. A. R. Renninger, Philadelphia.—p. 296.
114 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 300.

Public Health Journal, Toronto

February, 1918, **9**, No. 2

115 Advisory Committee on Venereal Diseases for Military District No. 2. J. G. Fitzgerald.—p. 49.
116 Military Aspect. G. Bates.—p. 53.
117 Subcommittee on Women's Activities. L. A. Hamilton.—p. 58.
118 Subcommittee on Quack Advertising. F. Paul.—p. 63.
119 Subcommittee on Education. A. E. S. Smythe.—p. 68.
120 Subcommittee on Legislation. C. J. O. Hastings.—p. 73.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

February, 1918, **27**, No. 2

121 Chronic Colitis with Especial Attention to Types and Causes. C. J. Fishman, Oklahoma City.—p. 25.
122 Consequences of Gastric Hyperacidity. E. D. Holland, Hot Springs, Ark.—p. 32.
123 Gastric and Duodenal Ulcer. C. E. Bowers and W. P. Callahan, Wichita, Kan.—p. 38.

Wisconsin Medical Journal, Milwaukee

February, 1918, **16**, No. 9

124 Plea for More Thorough Operations on Biliary Tract. D. N. Eisendrath, Chicago.—p. 335.
125 Septic Sore Throat: Galesville, Illinois, Epidemic. I. F. Thompson, Eau Claire.—p. 342.
126 Chemical Mechanism of Atrophy, Involution and Hypertrophy. H. C. Bradley, Madison.—p. 349.
127 Compulsory Health Insurance. A. E. Forrest, Chicago.—p. 354.
128 Indications for Davis Cesarean. R. W. Roethke, Milwaukee.—p. 359.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

January, 1918, **5**, No. 19

1 Gunshot Wounds of Chest. P. T. Crymble.—p. 363.
2 Two Cases of Keratodermia Blennorrhagica. C. Lundie.—p. 389.
3 *Septicemia as Complication of Gunshot Wounds; Thirteen Cases. H. M. Anderson and G. Richardson.—p. 393.
4 *Two Cases of Squamous Epithelial Tumor of Breast. R. Johnson and T. W. P. Lawrence.—p. 417.
5 Removal of Rifle Bullet from Right Lobe of Cerebellum. G. Jefferson.—p. 422.
6 *Some Aspects of Treatment of Infected War Wounds. O. C. Morgan, F. D. Saner and E. G. Schlesinger.—p. 425.
7 *Gunshot Wounds of Knee-Joint; Report of One Hundred Cases. E. T. Tatlow.—p. 462.
8 Case of Fascial Grafting for Repair of Traumatic Stricture of Urethra. R. J. Willan.—p. 494.
9 *New Operation for Substitution of Thumb. J. L. Joyce.—p. 499.
10 Case of Traumatic Aneurysm of Radial Artery. C. P. G. Wakely.—p. 505.
11 Case of Partial Separation of Calcaneal Epiphysis. C. H. Whiteford.—p. 507.
12 *Case of Gunshot Wound of Liver, Missile Entering Hepatic Vein, and Lodging in Right Ventricle of Heart. J. E. McCartney and H. Drummond.—p. 508.
13 *Unusual Case of Renal Calculus. F. C. Pybus.—p. 510.
14 Hematemesis and Melana Caused by Piece of Metal from Esophagus Perforating Aorta. N. H. Beal.—p. 512.
15 Case of Two Aneurysms Resulting from Penetration by Small Shell Fragment, One of First Part of Right Subclavian, Other of Aorta. G. Barling.—p. 514.

3. Septicemia in Gunshot Wounds.—A study of thirteen cases of septicemia has convinced Anderson and Richardson that blood infection occurs more frequently in patients suffering with gunshot wounds than is usually supposed, and that this infection may be due to a diversity of organisms. The clinical manifestations of such a complication may be few and trivial; the tendency to natural cure is strong. The following types of cases would appear, from their experience, to be those worth investigating: 1. Cases presenting wounds grossly infected with the bacillus of gas gangrene, and exhibiting the symptom complex associated with the third type of septicemia known to be produced by this organism. 2. Cases exhibiting anemia and emaciation with wounds of the cadaveric type. 3. All cases in which delirium is present, apart from those in which the position of the wound is such that the condition is intelligible. 4. Cases with temperature disturbance not accountable for by the state of the wound.

4. Squamous Epithelial Tumor of Breast.—In the two cases recorded by Johnson and Lawrence, the growth presented itself as a definite tumor of the breast, and in each the outstanding histologic feature was the presence of squamous epithelium with well-developed prickle cells. One patient was 53 years of age. The tumor had been present three weeks. It was as large as a walnut, was present in the upper and outer quadrant of the breast. The nipple was normal, and the tumor, although intimately connected with the breast tissue, was not attached to the skin or deeper structures. There were no palpable glands in the axilla. The tumor appeared to be slightly elastic, and was thought to be a cyst. Three of the patient's sisters had had cysts of the breast. In one, a cyst had been excised; in another, two cysts had been punctured; and in the third, two operations had been performed for multiple cystic disease. The whole breast, with the pectoral muscles and axillary contents, was removed. A year later there was no evidence of recurrence. Among the reasons that lead the authors to believe that the tumor is not a carcinoma are: (1) the association of gland-like spaces with the epithelial masses; (2) the abrupt change from the small cubical epithelium of the spaces into the squamous epithelium of the cell masses; and (3) the regularity of the cells of the squamous epithelial masses. In the second of these two cases there is no doubt that it is a squamous celled carcinoma originating in the skin overlying the breast, and with the naked eye it was possible to trace fine lines of opaque growth between the surface of the tumor and the skin itself. The structure of the tumor is in one respect peculiar, in that the epithelial masses, instead of presenting the usual alveolar structure, have retained an exaggerated papillary arrangement, so that these masses are seen to enclose a core of cellular connective tissue.

6. **Treatment of Infected War Wounds.**—The authors discuss the treatment of wounds under two headings: (1) the part wounded; (2) the wound itself. In wounds of the extremities, whether complicated by fracture or not, aimed to secure immobilization of the limb involved, and at the same time to preserve to the patient as complete a mobility of the rest of the body as possible. This has been secured by carefully splinting the limb and then suspending the whole splint from overhead pulleys with accurately balanced counter weights. Any movement of the patient in bed is then followed by the splint, without any disturbance of the injured part, as is shown by the absence of pain. To secure extension, except in certain particular cases they have used almost entirely Sinclair's glue. In dealing with fractures and wounds of the lower limb, the authors have used almost entirely the Thomas splint, either straight or bent, and suspended in extension on the Hodgen principle; the end of the bed being raised to secure counter extension. For fractures of the femur, excepting those very high up, and for extensive thigh wounds, they have used a bent Thomas splint, with a metal archway fixed to the splint in the required position by Mead's strapping and from which the foot is suspended by gauze glued to the sole of the foot. Extension is obtained by gauze glued to the leg and fixed to the end of the splint, while the whole splint is extended either by a running weight attached to its sides or by a forward position of the suspension pulleys. In the intensely comminuted fracture of the tibia the authors have used a Thomas splint, with Sinclair's wooden foot piece.

Fractures of the tarsus and metatarsus have been dealt with by suspension from an archway by the toes, and, if in a Thomas splint, the leg has been kept in position relative to the point of suspension by gauze running from the leg to the bottom of the splint. Fractures of the humerus have been treated, as a general rule, with the elbow flexed to a right angle, and by methods varying with the position of the fracture and the wounds. Fractures of the forearm have been treated either on a right-angled Thomas splint, with the upper fragment fixed to the splint and a weight acting on the lower, or by a form of suspension extension tray. In wounds of the carpus and lower third of the forearm this splint has also been used, usually with a wedge attachment at the end to secure dorsiflexion of the wrist. In cases of fractured scapula they have been in the habit of suspending the arm at shoulder level in counterbalanced slings. In the mechanical treatment of joint injuries, the main object has been to arrange the limb in such a position as to obtain as speedily as possible a penetration of the irrigating fluid into all parts of the joint involved. Extension is here the prime need, and where extension is really efficient, immobilization of the injured parts, that is, the joint surfaces relative to each other, will follow automatically. In infected wounds of the knee joint, where a natural arthrotomy was in existence or where a surgical arthrotomy was performed, the authors have used the metal extension stirrup of Finochietto.

Elbow joints have been treated on the suspension extension tray. Wrist joint wounds have been treated in the same way, extension being obtained from the fingers. Ankle joints have proved difficult, since they are so frequently complicated by compound fractures of the tarsus; but in those cases in which the skin of the sole is uninjured, a very good separation can be obtained by using the metal sole piece used in dealing with oblique fractures of the tibia. A point of great importance in these cases is to obtain a very considerable degree of inversion of the foot, both from the point of view of after-results and of immediate treatment. In the treatment of the wound itself the object has been to destroy as rapidly as possible all dead tissues in the wound. This has been achieved by intermittent irrigation through Carrel's tubes with the hypochlorite solution of Dakin and Daufresne. In addition to the lines of treatment sketched above, ordinary surgical principles as they apply to infected wounds must be observed.

7. **Gunshot Wounds of Knee-Joint.**—These 100 patients have been under Tatlow's treatment at a base hospital. He says that early operation, if the procedure be radical, and especially if the entire capsule can be sutured, results, in 94 per cent. of the cases, in a sterile joint, and therefore in a successful issue. Where a pack or drain is used down to a tear in a capsule or to a cavity in bone, the results can never be depended on. The removal of missiles from the joint within the first week, even in the presence of sepsis (other than that due to the streptococcus), can be followed by immediate suture, bismuth iodoform petrolatum paste being used to aid sterilization. Tatlow regards the Carrel-Dakin method as being the most useful for the treatment of bone lesions or septic periarticular conditions. It is almost impossible to sterilize a severely infected joint by this method. In the presence of a general infection of the joint by the streptococcus, resection gives good results, even when performed in the second or third week. Cases of severe bone injury should be treated more often than they are by an immediate primary resection of the joint at the clearing station.

Aspiration has given bad results in Tatlow's hands. If the effusion is sterile, it must be regarded as a protective effusion and left alone; if it is infected, it must be evacuated. Aspiration should not be used as a curative measure. Every effusion is needled for diagnostic purposes, and if sterile, is left alone to be absorbed, being considered a protective effort on the part of the joint. Nonabsorption does not occur. Absolute immobility is necessary. The fewer the dressings the better. Any operative procedure, short of resection, should be carried out without removing the limb from the splint. Every case of wound in the joint is best treated, for a time at any rate, on a Thomas splint with a fixed extension, using pulleys or not for the splint itself, as may seem advisable. Starting pains at night are an indication for tightening the extension. At first, if the joint appears quiescent and no pain is complained of, the limb is placed on the splint, and the extension bands are applied, but not tightened; as soon as the knee jumps, the bands must be tightened. Small plates of perforated zinc laid on cross ribbons of aluminum are the best supports, as they can be easily changed and the skin attended to by the ward sister with the minimum of movement.

9. **Operation for Substitution of Thumb.**—An operation has been devised by Joyce to substitute a ring finger of the opposite hand for a thumb lost as a result of injury or disease. The well known method of employing a pedunculated flap is used in this operation. The patient on whom this operation was practiced lost the whole of his right thumb, including its metacarpal bone, as the result of a gunshot wound. The operation is described under the following headings: 1. Preparation of the bed for the reception of the new metacarpal bone, and exposure of the proximal end of the divided tendons of the old thumb. 2. Dislocation of the ring finger of the opposite hand at the metacarpophalangeal joint, involving division of the soft tissues at the base of the radial side of the proximal phalanx, division of the extensor and flexor tendons, and the preservation of a nutritive flap on the ulnar side of the finger. 3. Fixation of the new metacarpal bone (proximal phalanx of ring finger) in its bed, union of tendons and nerve, suture of incisions, and fixation of the hands in apposition. 4. Division of nutritive flap—two months later than 1, 2 and 3.

12. **Gunshot Wound of Liver and Right Ventricle.**—In this case a triangular piece of shell about 1 inch in length entered the thorax between the seventh and eighth ribs on the right side, in the midaxillary line. It then opened the right pleural cavity without touching the lung, pierced the diaphragm, and entered the liver. The fragment traversed the right lobe, and passed into a large branch of the right hepatic vein, in this way gaining access to the inferior vena cava. The missile was subsequently found at necropsy lying between the columnae carneae of the right ventricle of the heart, its apex being surrounded by firm white clot which was not of recent origin. The patient had, in addition, other serious wounds, and survived his injuries for thirty-six hours. The presence of the missile in the heart was not suspected during life.

13. **Case of Renal Calculus.**—The renal calculus described by Pybus formed a perfect cast of the interior of the pelvis and calices of the kidney and the upper portion of the ureter.

Medical Journal of Australia, Sydney

Jan. 12, 1918, **1**, No. 2

16 Surgical Notes from Western Front During Summer Fighting of 1917. E. H. Burkitt.—p. 21.

January 19, No. 3

17 Working of Roentgen Ray Departments in Hospitals. H. Harris. —p. 41.
18 Hypochlorites. R. C. Cowley.—p. 41.

Medical Journal of Australia, Sydney

Jan. 26, 1918, **1**, No. 4

19 Military Orthopedics. V. Hurley and H. R. G. Poate.—p. 61.
20 *Subtertian Malaria; Report of Thirty-five Cases. A. W. Holmes à Court.—p. 63.
21 Perforating Injuries of Eyeball by Magnetizable Bodies. G. A. Pockley.—p. 66.

20. **Subtertian Malaria.**—Malarial parasites were found in thirty-three of Court's thirty-five cases. In the remaining two patients quinin had been administered before the blood was examined. In these cases the periodicity of the fever and rapid response to quinin allowed the diagnosis to be established. Morphologically, the parasites corresponded to *Laverania malariae*, the infective agent in subtertian or malignant malaria. Multiple infection of red corpuscles was frequently noted, sometimes three parasites being observed in a single cell. The severity of symptoms in general seemed to correspond fairly closely to the relative number of corpuscles invaded, although the height of the fever did not appear to have so close a relationship to the number of parasites seen in the peripheral blood. The characteristic crescent gametocytes were found in the peripheral blood on the tenth day of the disease in one patient who recovered, and in the spleen and liver in one case which terminated fatally. Albuminuria was present in 48.5 per cent. Hemoglobinuria was not observed. Intramuscular injections of quinin hydrobromid (0.6 gm. dissolved in 8 c.c. sterile water with addition of a few drops of acid hydrobrom. dil) produced rapid amelioration of symptoms. Two injections were given into the gluteal muscles at an interval of eighteen hours. Diarrhea and vomiting then ceased, and rectal or oral administration of quinin sulphate was employed. After two intramuscular injections had been given, not only did the young parasites, merozooites and young trophozooites disappear from the peripheral blood, but the gametocytes could not longer be found, although these forms are usually unaffected by quinin. Two patients died in spite of energetic treatment. Both were already cachectic from other diseases (diabetes and phthisis). The malarial infection was merely a terminal event. A postmortem examination was made in one of these cases, and parasites were found in spleen and liver. Hemozoin granules were noted in the parenchyma cells of these organs. The bone marrow was unusually dark in color, soft and diffluent; no parasites were observed therein. These cases emphasize the importance of early blood examination in doubtful cases of pyrexia, with or without rigors.

Archives des Maladies de l'Appareil Digestif, etc., Paris

March, 1918, **9**, No. 8

22 *Resection of Right Colon. V. Pauchet.—p. 421.
23 *Tropical Dysentery in Spain. F. F. Martinez.—p. 431.
24 Efficacy of Bardane (Burdock) in Treatment of Liver Colic. E. Savini (Jassy).—p. 444.
25 *Duodenal Ulcer with Fistula Later. A. Mathieu and A. S. Alivisatos.—p. 448.
26 *Chronic Diarrhea. A. Mathieu and M. Delort.—p. 454.

22. **Resection of the Right Colon.**—Pauchet includes in this term the cecum, ascending colon and half of the transverse colon. He discusses the indications for resection as afforded by constipation, tuberculosis or cancer, and gives an illustrated description of the technic for shelling out the whole in one piece. The side-to-side anastomosis between ileum and transverse colon is done with a button, the drawn up end of each projecting in a blind pouch beyond. The suture thread of the colon pouch is left projecting through the wound as a kind of safety valve. The vertical incision for the operation is a little to the right of the median line.

23. **Differential Diagnosis of Tropical Dysentery.**—Martinez is chief of the Institute for Tropical Medicine at Grenada, and he has published numerous reports showing the comparatively frequent prevalence in Spain of the so-called tropical diseases, in persons who have never been outside of Spain. He here describes a case of typical dysentery in which he found Schaudinn's *Endameba histolytica.* He emphasizes that the differential diagnosis of tropical dysentery is a simple matter when 1 c.c. of fresh stool can be introduced into the rectum of a new-born kitten. In two or three days the kitten develops dysentery, generally fatal, sometimes with liver abscesses. Emetin cured the acute cases of tropical dysentery, but it also cured in some cases of dysentery of other origin, hence the recovery under emetin cannot be regarded as a sure sign of the amebic origin.

25. **Duodenal Ulcer.**—The symptoms subsided after gastroenterostomy but at necropsy, seven years later, a fistula between the jejunum and colon was found. It was evidently of long standing and had caused no symptoms.

26. **Nonamebic Diarrhea Cured by Emetin.**—There were no symptoms of dysentery, but the recurring severe diarrhea was completely cured with emetin. It was given because dysentery was prevailing at the time. The case is interesting further because the diarrhea returned in an acute form later under the influence of a minor operation. This time it yielded to dietetic measures without drugs, such as previously had had no effect.

Archives de Médecine des Enfants, Paris

January, 1918, **21**, No. 1

27 *Leukocyte Count in Cerebrospinal Fluid. Condat.—p. 1.
28 *Physical Measurements and Tuberculin Reaction. A. Reis.—p. 26.
29 Saccharose in Albumin Milk. G. Rheingantz.—p. 27.
30 Mouth Reaction in Infants on Different Diets. A. Rongel.—p. 27.
31 *Hexamethylenamin in Bronchitis. A. Neves.—p. 29.
32 Infantilism of Malarial Origin. A. A. S. Moreira.—p. 30.
33 Phocomelus Deformity. J. Comby.—p. 33.

27. **The Leukocyte Count in the Cerebrospinal Fluid in Children.**—Condat summarizes eighty-eight cases of pneumonia, meningitis, chorea or other diseases in which the leukocyte count in the cerebrospinal fluid was repeatedly recorded. By simply counting the leukocytes we are able to distinguish between mere meningeal reactions and actual meningitis. Chemical examination of the fluid gives less exact and less sensitive findings. She insists that the number of leukocytes should be specified as a routine element in the clinical record of the case. In some cases of pneumonia the symptoms on the part of the meninges were so severe that meningitis was suspected, until the number of lymphocytes in the fluid was found within normal range or only slightly above this. This also was the finding in a case of otitis, and the outcome justified the favorable prognosis based on the low lymphocyte count in the spinal fluid. They ranged from 1.2 to 3.2 per cubic millimeter, in one case reaching the figure of 26, but even this is far below the figure found in actual meningitis. It reached 202 in one case of syphilitic meningitis, and in tuberculous meningitis ranged from 44 to 112 and 125, or higher, reaching 320 and 400 in two little girls. In the incipient cases, 47 and 50 up to 100 was the rule. There does not seem to be any close connection between the evolution of the meningitis and the lymphocytosis. With acute purulent meningitis the figures were far above this, the leukocytes numbering 1,080 in one case of pneumococcus meningitis, with 97 per cent. polynuclears. In one case there was dissociation, the fluid showing excessive amounts of albumin but only one lymphocyte to the field. This was in a boy of 10 with tuberculous hip and knee disease but no meningitis. Syphilitic meningitis is the only clinical picture in this class of cases liable to prove misleading, and a tentative course of treatment clears up this.

28. **Chest Measure and Height in Relation to the Skin Tuberculin Test.**—Reis obtained a positive skin tuberculin reaction in nearly 35 per cent. of 125 children between 3 and 10 tested at Rio de Janeiro. Among the 36 giving a positive reaction, 21 were smaller than the average for their years, and in 14 the chest measure was abnormally small.

31. **Hexamethylenamin in Bronchitis.**—Neves gave this drug to 92 children with bronchitis and found that appreciable

benefit was derived only in 5 of the 18 with acute bronchitis; in 8 of the 46 with subacute and in 2 of the 28 with chronic bronchitis. The children bore it well when the dose was not over 1 gm. for the age of 6 months to 2 years; 2 gm. for from 2 to 5 years, and 3 gm. from 5 to 10 years, giving the hexamethylenamin always in a 1 per cent. solution in distilled or boiled water. The drug is decomposed so promptly by the gastric juice that within fifteen minutes ammonia and formaldehyd can be detected in the urine; the elimination keeps up for at least two hours. His conclusions are that this drug cannot be depended on in bronchitis in children, but that the hematuria and other by-effects sometimes noted by others after giving the drug are the result of excessive dosage.

Archives de Médecine et de Pharmacie Militaires, Paris

October, 1917, 68, No. 4

34 *Albuminuria after Acute Nephritis. Péhu and Daguet.—p. 513.
35 *Emetin in Amebic Liver Disease. Cros and de Teyssier.—p. 531.
36 Healing of Skull Wounds. Villandre.—p. 546.
37 Classification of Deafness. J. Molinié.—p. 554.
38 *Burials after a Battle. Bosredon.—p. 561.
39 Wheeled Litter. J. de Fourmestraux.—p. 582.
40 Spirilla Dysentery. Abbatucci.—p. 620.
41 Care of the Wounded at Battle of Gravelotte, 1870. Marit.—p. 632.

34. **Albuminuria after Acute Nephritis.**—Péhu and Daguet refer only to acute nephritis in the troops on active service. Eighty of the men in their service were left with albuminuria, and some presented manifest or occult blood in the urine. Only twenty-five threw off the albuminuria. If this does not occur in three or four months of hospital supervision of the diet, there is no use in keeping the men longer in the hospital. There does not seem to be any tendency to date for chronic kidney disease to develop later. But these men must be regarded for a time as having weak kidneys. They know of only three with recurrence of the nephritis, but they advise a rather long convalescence furlough for men whose residual albuminuria has disappeared. Those with persisting albuminuria in a somewhat stable proportion are not fit even for light duty, and they should be temporarily discharged from the army. When meat was given, albuminuria became increased, although this effect at times was not noted till from five to six or even ten days after meat had been resumed. This intolerance for meat may be only transient. As a rule it subsided in a few weeks so that the ordinary diet could be resumed. In some of the men alcohol invariably increased the proportion of albumin, but the most pronounced effect was from intercurrent febrile infections. An ordinary sore throat, bronchitis, even a rheumatismal condition, brought on a recrudescence of the albuminuria and the output of urine became less. Attempts at organotherapy proved futile, and no benefit was derived from any medication except the symptomatic, including of course *theobromin*, the excellent influence of which requires no demonstration.

35. **Emetin in Amebic Liver Disease.**—In most of Cros and de Teyssier's cases the dysentery phase of the amebic infection had passed unnoticed. The men complained merely of pain in the liver, sometimes involving the epigastrium, hypochondrium and the base of the chest (in front up to the mamma, not so high in the back). The liver was enlarged and there were tender points in some cases. The fever curve was variable; sometimes after the pus had collected there was no further fever. Six cases of hepatic amebiasis are described in detail. They confirm the prompt efficacy of emetin in many cases of the liver complications of amebiasis. They gave the emetin by a daily subcutaneous injection of 4 cg. for four or six days, then at longer intervals, reducing the dose to 2 cg. If this fails, the emetin can be injected directly into the abscess cavity after it has been emptied by puncture. They advise giving it in every case of persisting pain in the liver in regions where amebiasis is endemic, regardless of whether there have been symptoms suggesting dysentery. Every tendency to diarrhea is suspicious of amebic infection in these regions.

38. **Burial of the Dead after Battles.**—Bosredon comments that the burial of the dead has been left too much to private initiative. In the Belgian army it is obligatory to carry the dead back of the lines for burial. This has a number of advantages, especially for identification purposes. He relates that no isolated graves are found in territory that has been occupied by the Germans. The graves are always arranged in well organized cemeteries, far back from the lines. Even in their retreat they took back with them nearly all their dead. Bosredon suggests that a wire passed around the neck and brought up to the surface of the grave might be used to attach a metal plate or something of the kind on which the identification numbers might be cut.

Bulletin de l'Académie de Médecine, Paris

Jan. 15, 1918, 79, No. 2

42 *Sulphuration Treatment of Scabies. Railliet.—p. 48.
43 The Liver in Malaria. M. Labbé.—p. 54.
44 Fifth Cusp on Prehistoric Teeth. E. Jeanselme.—p. 55.
45 Intranasal Correction of the Nose. J. Bourguet.—p. 59.

Jan. 22, 1918, 79, No. 3

46 Kidney Lithiasis and Cancer. P. Menetrier and Martinez.—p. 65.

42. **Sulphuration in Treatment of Scabies.**—Railliet traces the history of the use of sulphur gas back to 1813 and before, and describes Osborn's work in this line in 1884. Railliet's research has convinced him that the effectual agent is the sulphuretted hydrogen alone, heated to 30 C. This is undoubtedly the best treatment known to date for scabies in horses. But he adds that there is no need for apparatus to generate the sulphuretted hydrogen, as the latter can be used in fluid form. It merely requires means to heat it.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 16, 1917, 41, No. 31

47 *The Gonococcus Count. L. Ramond and L. Charlet.—p. 1099.
48 *Gastric Crisis in Tabes. P. Carnot and I. Bruyère.—p. 1103.
49 War Wound of the Thalamus. G. Guillain.—p. 1110.
50 *The Sphincters with Shell Shock. G. Guillain and Barré.—p. 1114.
51 *Potassium Iodid Intravenously. C. Simon.—p. 1118.
52 *Seltzer Water to Clear the Throat. J. Comby.—p. 1120.
53 *Chronic Lead Parotitis. J. Comby.—p. 1122.
54 Foreign Body Pseudotuberculosis. D. Denéchau.—p. 1123.
55 *Jacksonian Paresis. H. Meige and A. Bénisty.—p. 1128.
56 *Addison's Disease plus Exophthalmic Goiter. F. Ramond and A. François.—p. 1131.
57 *Subdulness at Apex. F. Ramond and A. François.—p. 1134.
58 *The Fifth Cusp. G. Railliet.—p. 1138 and p. 1141.
59 *Color Reaction in Blood Cultures. P. P. Lévy.—p. 1143.
60 *Microsphygmia with War Contracture. M. d'Oelsnitz and J. Boisseau.—p. 1147.

47. **Systematic Gonococcus Count.**—Ramond and Charlet took the blood count and the gonococcus count systematically in nine cases of acute gonorrhea, examining 127 specimens of the gonorrheal pus. They could not detect any regularity or any bearing on the prognosis from either the blood or gonococcus count. One finding however was suggestive, namely, the constancy of the acme of the curve of the total gonococci in the course of the third week. This suggests a partial immunization of the organism to the gonorrheal infection localized in the urethra. This vaccination is far from absolute, but it aids in promoting the action of the balsamics, and thus supplies a basis for the empiric custom of waiting till the end of the third week before giving these drugs.

48. **Tabetic Gastric Crisis without Pain.**—The man of 45 had had occasional morning vomiting during the last two years but seemed otherwise well. Then came a period of vomiting and hiccup which kept up almost incessantly for ten days, with occasional slight hematemesis, but no pains at any time. The whole stopped at once the tenth day. Signs of latent tabes explained this motor gastric crisis.

50. **Transient Sphincter Disturbance from Shell Shock.**—Guillain and Barré report twelve cases of complete retention of urine or incontinence of urine after shell concussion without direct contact. Such sphincter disturbances are rare as they have encountered only these twelve cases among several hundred men with shell shock.

51. **Intravenous Injections of Potassium Iodid.**—Simon found that a patient was not taking the potassium iodid ordered by the mouth, and he then gave the drug by the vein, and reports excellent results, from every point of view, in six cases. There were no signs of iodism, and by waiting until all traces of iodin had disappeared from the urine, there

were no appreciable by-effects. He began with 0.05 c.c. of potassium iodid in 1 c.c. water but gradually increased the dose to 0.9 gm. in solution of 0.25 gm. to the cubic centimeter water. He tested the urine by adding 5 c.c. of chloroform to 10 c.c. urine and pouring in 2 c.c. of nitric acid rendered nitrous by addition of sodium nitrite in the proportion of 10 cg. to 100 c.c. The mixture is agitated and set aside. The positive response is a violet tint in the chloroform. This simple test is sufficiently accurate to show the beginning, maximum and end of the elimination of iodin by the same patient.

52. **Seltzer Water Siphon for Clearing Out the Throat.**—Comby reports that ulcerating, necrotic sore throat can be effectually cleared out by spraying with the jet from a seltzer water siphon. He lengthens the nozzle with a rubber tube 10 or 15 cm. long, which is laid on the tongue depressor held by the left hand. The carbonated water jet washes out the throat, to the great relief of the patient, child or adult. In a recent case of a scarlatinal ulceronecrotic angina, the final recovery of the patient, a young solder, is attributed to this siphonage of the throat repeated several times a day. He clamored for it after the first trial. Labruhe introduced this seltzer water spray method and others have used it in severe anginas with constant satisfaction.

53. **Chronic Parotitis from Lead Poisoning.**—Comby says that the aspect is like that of mumps, but the men presented other signs of lead poisoning in the twelve cases he has encountered. The enlarged glands were not tender, and did not seem to incommode the men.

55. **Jacksonian Paresis.**—Meige and Bénisty state that five men wounded in the skull presented jacksonian phenomena, but instead of spasms they took the form of paresis, lasting for a longer or shorter time, in one member or symmetrical members. The skull wounds had all been in the rolandic area. The disturbances were bilateral in three cases, and in all there were concomitant vasomotor disturbances. These jacksonian phenomena did not develop until three years after the skull wound in one case.

56. **Combined Addison's Disease and Exophthalmic Goiter.**—Ramond and François believe that when the suprarenal glands are insufficient, the thyroid may come to their aid, by increasing its own functioning. In twenty-six cases of Addison's disease they obtained a thyroid reaction in four. In one of these in this group, the thyroid enlarged about six months after the visible onset of Addison's disease. Tachycardia, tremor and other symptoms of exophthalmic goiter became superposed; as they developed, the symptoms of Addison's disease became attenuated. This sequence of clinical phenomena was so striking, they accepted it as a suggestion for organotherapy, and since then have been giving patients with Addison's disease 0.5 gm. of pulverized suprarenal tissue and 0.01 gm. of thyroid powder in the morning, fasting for six days. Then they drop the thyroid, keeping on with the suprarenal treatment for ten days and then continuing with ten days of the two combined, and so on. The outcome was not very clear in some of the cases, but in three the improvement was marked.

57. **Subdulness of the Right Apex.**—Ramond and François have noticed that the apex of the right lung gives a slight subdulness response to percussion, compared with percussion of the left lung, even with normal conditions in both. The distinction is slight but unmistakable. The left forefinger should be placed parallel to the clavicle along the first interspace, not perpendicular to the clavicle. At the back, the finger should be placed symmetrically in examining both apices; they prefer to point it toward the seventh cervical vertebra. Percussion should be compared on both sides during inspiration and also during expiration. In detecting apical tuberculosis, the functional and general signs are most important but they require long and scrutinizing study of the case. Suspects should be sent to a special service equipped for the purpose.

58. **The Fifth Cusp.**—Railliet is inclined to regard the fifth cusp on the molars as a sign of defective development from any one of several causes, not exclusively from syphilis.

59. **The Color Diagnosis of Blood Cultures.**—Lévy has noticed that the bright red and brownish red tints of bouillon blood cultures are observed only when the fluid is sterile. With a purplish tint the cultures will prove positive. This change of tint comes from the hemoglobin of the red corpuscles having become reduced by the action of the microbes present. All the current micro-organisms display this reducing action.

60. **Vasoconstriction with Traumatic Contracture.**—D'Oelsnitz and Boisseau state that the oscillometer applied in 223 cases of contracture in the wounded and in healthy controls showed that the circulation was always weaker in the contracted hand or foot. They found moreover that the circulation even on the sound side was less than normal, although much stronger than on the side of the contracture. They noticed that when these pithiatic contractures were suddenly conquered, the pulse on that side at once became as strong as on the sound side. But it was not as strong as in normal controls, and it seems evident that a constitutional or acquired weakness of the pulse, a microsphygmia, is a more or less important element in the development of the contractures, the physiopathic disturbances.

Journal de Médecine de Bordeaux

January, 1918, 89, No. 1

61 *Treatment of Malaria. J. Carles.—p. 3.
62 *War Wounds of the Chest. Creyx.—p. 9.
63 *Laparotomies at an Advanced Post. Drouin.—p. 12.
64 Aneurysmal Periosteoma. Charbonnel.—p. 15.

61. **Treatment of Malaria.**—Carles insists that malaria belongs in the same class with syphilis and amebic dysentery *as a disease eminently chronic, with frequent revivals of* manifestations, and requiring treatment over years, as with syphilis and amebiasis. The different types of the malaria germs respond differently to treatment. Quinin is usually ineffectual against the encysted forms of the falciparum type and vaccine therapy seems the only hope here. To date it has proved impossible to grow these hematozoa in the laboratory on the scale required for prolonged vaccine therapy. This is a problem still to be solved. But if the organism could be thus stimulated to manufacture a constant supply of antibodies, the young germs would be killed off and the chronic infection would thus in time become extinct. Every man with grave malarial infection is disqualified for duty for six months, a year or more. Every return to fatiguing occupations brings back the attacks, and the general health declines. Some of his patients were cured with quinin, 1 gm. morning and night three days a week, given by the mouth, vein or intramuscularly; others did not throw off their attacks until sodium cacodylate was given with the quinin, and thirty of the 100 men thus treated proved absolutely refractory. These all had the falciparum alone or associated with the vivax.

62. **Wounds of the Chest.**—Creyx describes the differences in the physical findings when there is much hemorrhage. With an open thorax the stethoscope findings are unreliable, but when the thorax is closed, the stethoscope will reveal the hour when effusion from being mechanical becomes inflammatory. This change in the stethoscopic findings coincides with the appearance of the polynucleosis index of the effusion.

63. **Laparotomies at an Advanced Post.**—Drouin relates that of twelve men brought in with multiple wounds of the abdominal viscera, five died at once and three recovered of the seven others given prompt operative treatment. Some of the others might have recovered if it had not been for pulmonary complications. Radioscopy is a valuable aid in ascertaining conditions but it has so many drawbacks, the delay, the chilling of the man, the handling, etc., that it is by no means indispensable. The anatomic exploration and the resection of the path of the projectile are the first steps when practicable. A little morphin in two doses seems to aid in raising the blood pressure when the suffering predominates in the shock. If after an hour there is no recuperation, any intervention is hopeless, but if the pulse is the least bit better, then he operates at once. The resection of the path of the projectile is done with instruments, gloves, etc., which

are then discarded and others taken for the laparotomy proper. He does not begin the work of repair until the whole abdomen has been examined and the path reconstituted.

Journal de Radiologie et d'Electrologie, Paris

September-October, 1917, 2, No. 11

65 *Interpretation of Roentgen Findings of the Sphenomaxillary-Temporal Region and the Face. C. Villandre.—p. 641.
66 *Roentgen Treatment of Tinea. M. J. Gouin.—p. 648.
67 Echinococcus Cyst of the Tibia Revealed by Roentgenography. A. Mignon.—p. 655.
68 *Roentgen Ulcer of the Scalp. J. Belot and Chavasse.—p. 657.
69 *Equipment to Produce Radio-active Water. A. Laborde.—p. 663.
70 Control of Spark Regulator from a Distance. L. Delherm and A. Laborde.—p. 666.
71 Forceps for Extraction of Projectiles under Roentgen Screen Control. Ducellier.—p. 667.

65. Radioscopy of the Face.—Villandre gives a number of typical radiographs of the side of the face, temple and jaw, interpreting the findings by his extensive experience with projectiles lodged in these regions. The aim is to locate the foreign body by its relation to the skull and the brain, by its relation to the spheno-maxillo-temporal region, and also to the cavities of the face.

66. Roentgen Treatment of Tinea.—Gouin has been applying the rays to a circle and then covering the exposed circle with a disk of lead, and so on. This is the technic used at the Lallier school for children with ringworm, but the length of the treatment can be advantageously shortened, he says, by exposing the whole of the scalp to a dose of 5 units each at five sittings. Each sitting takes about an hour for this superficial crossed-fire method of application. It has proved extremely satisfactory in 300 cases of tinea and ten of favus. He gives illustrations showing the position for each of the five fields of exposure. The ear is protected with a sheet of lead.

68. Radiodermatitis after Roentgen Examination of the Skull.—In order to locate a projectile, three exposures of fifteen and twenty-two minutes were made of the skull above the ear, the patient a man of 37. This was followed within a few days by a severe dermatitis in the region, edema and ulceration. Now, nineteen months later, the whole region, about 8 cm. in diameter, is bald.

69. Pump to Supply Radio-Active Water.—Laborde gives an illustrated description of an apparatus which supplies radioactivated air or water for research on the biologic and clinical effects.

Paris Médical

Jan. 5, 1918, 8, No. 1

72 *Incipient Tuberculosis. P. Merklen.—p. 3.
73 The Provisions in the Different Provinces for Tuberculous Soldiers. L. Bernard.—p. 8.
74 Phthisiophobia and Phthisiomania. C. Sabourin.—p. 12.
75 *Tuberculosis and War Gases. Gimbert.—p. 17.
76 *Pleurisy in Tillers of the Soil. Braillon.—p. 23.
77 Abbreviations for Breathing Signs. G. Railliet.—p. 25.
78 *Sign of the Sou. P. Lereboullet.—p. 26.

72. Incipient Tuberculosis.—Merklen reviews the various conditions which should be excluded before accepting a tuberculous origin for the symptoms observed: mouth breathing, nasopharyngeal lesions, anomalies in the thorax, etc. There is nothing characteristic about the objective symptoms or the functional findings with either a progressing or an arrested affection or pleuritis at the apex, and the decision must be based on the general signs, and the persistence of the shadow after coughing.

75. Tuberculosis Developing after Gassing.—The injury from the war gases may rouse a slumbering tuberculous lesion, but this does not seem to be of frequent occurrence. When it develops there may be scarcely any general signs although the pulmonary lesions are progressing rapidly. Prophylaxis consists in intensifying the measures to aid in throwing off the intoxication, and prolonged supervision, combating the low blood pressure, vasodilatation, etc.

76. Pleurisy in Farm Workers.—This entire number of the *Paris Médical* is devoted to disease of the lungs and pleura. Braillon calls attention to the characteristic location of a pleural effusion in the front upper part of the pleura in men who bend over at their work, such as tillers of the soil.

78. The Penny Sign of Pleurisy.—Lereboullet remarks that time has confirmed the instructive findings when a pleural effusion is auscultated from the rear while two pennies are struck together in front. This *Signe du sou* is one of the best means to detect an effusion in the pleura. One of the pennies is held flat on the chest and it is struck rhythmically with the edge of the other penny.

Presse Médicale, Paris

Jan. 10, 1918, 26, No. 3

79 Mitral Stenosis in the Army. J. Denis.—p. 21.
80 Suture of War Wounds. R. Grégoire and H. Mondor.—p. 22.
81 Simplified Intratracheal Injections. M. Mignon.—p. 23.

Correspondenz-Blatt für Schweizer Aerzte, Basel

January 19, 48, No. 3

82 *Etiology and Prophylaxis of Goiter. O. Bernhard.—p. 65.
83 *Pyelitis in Children. E. Wieland.—p. 68. Conclusion.

82. Lack of Light as Factor in Goiter.—Bernhard argues that as endemic goiter seems most prevalent in deep valleys shut off by the mountains from the sunlight, the lack of light may be a cooperating factor. He cites other evidence to sustain this view.

83. Pyelitis in Young Children.—Wieland says that four died of the forty-five children with pyelitis at the Basel children's clinic, including one from pneumonia after it had been taken home. In only one case could the death be ascribed to the pyelitis alone. The death rate in his service therefore for pyelitis in young children was only 5 per cent., approximately the same figure as in adults. In his series the sexes were about evenly divided in the infants, but the older children were girls. This and other reasons confirm the assumption that the disease is blood borne or lymph borne in infants. The colon bacillus is generally found but he has encountered also the staphylococcus, streptococcus and proteus. Predisposing factors are some slight infection of the respiratory passages, rhinopharyngitis, angina or grip, occasionally pneumonia, chilling or bowel trouble, but constipation does not seem to have anything to do with it nor retention of urine. The acute sudden onset, high fever, usually following close on some slight infection and without symptoms of cystitis, and the primary localization of the pain in one or both kidney regions, all point to an infectious process in the kidney pelvis probably secondary to some injury of the interstitial tissue of the kidney. The diagnosis cannot be definitely made without microscopic examination of the urine, leukocytes in the hanging drop of the urine (in the female) obtained with a catheter. The usual boiling test does not reveal the pus in the urine. Fever without apparent cause, pallor, general muscular rigidity with persisting loss of appetite should suggest pyelitis and call for microscopic examination. The prognosis for the single attack is favorable but infants are liable to succumb to complications, and the pyelitis is liable to recurrence; possibly the pyelitis of pregnant women may be traced to pyelitis in infancy. Treatment should aim to stimulate diuresis, sterilize the urine and keep it persistently alkaline. The acid pyelitis urine should be rendered alkaline. The best results were realized with hexamethylenamin at first, from 0.2 to 0.5 gm. three times a day—this acts best in an acid medium—with restriction to milk and copious intake of fluids, weak gruels, tea, sweetened water, Ems water. After eight or ten days, when the acute symptoms, fever, prostration, pains in the pelvis and disinclination to eat or drink, have subsided, then he turns to alkaline treatment, giving salol with it, 0.3 gm. each of salol and of sodium bicarbonate three times a day, even to infants. For older children he gives 0.5 gm. salol with 2 or 3 gm. sodium bicarbonate three times a day. Fruit juices and vichy or other mineral water are given the infants; the older children get a mixed diet mostly of vegetables and cooked fruit.

Annali d'Igiene, Rome

November, 1917, 27, No. 11

84 *The Meningococcus. P. Caldarola.—p. 665.
85 *The Bacillus Murisepticus in Rodents. N. Mori.—p. 685.
86 Hemotrichomonas in Pigeons' Blood. A. Lanfranchi.—p. 697.
87 Hygiene in Cultivation of Rice. L. Verney.—p. 700.

84. **Conservation of Strains of Meningococci.**—Caldarola had forty-two strains of meningococci that had been sent to the laboratory from different parts of Italy for the production of polyvalent antiserums. In studying them he found that none of the strains of living meningococci injected into the rabbit peritoneum displayed toxic action, while an intravenous injection at the same time killed the animals. An ether extract of the germs, injected intravenously, reduced the defensive powers so that the otherwise harmless intraperitoneal injection then killed the animal. Extracts of typhoid bacilli had the same effect.

85. **Infectious Disease in Field Rodents.**—Mori describes a natural infection of the *Pitymys savii* which seems to be the work of the *Bacillus murisepticus.* Large numbers of these rodents were infected with it. When it was prevalent the swine showed a high mortality, and he thinks that the swine plague, called locally russa, is probably the same thing as this disease in the arvicola.

Rivista Critica di Clinica Medica, Florence

Dec. 22, 1917, **18,** No. 51

88 Conservation of Rabies Virus in Dry Form. A. Martiri.—p. 513.
89 *Staining Technic for Urine Sediment. C. Minerbi.—p. 518.

89. **Urine Staining Technic.**—Minerbi heats the isolated urine sediment with human blood serum or egg albumin, both of which coagulate under the action of fixation measures. Then when the May-Grünwald-Giemsa stain is applied, the background is homogeneous and colorless, and the preparation is exceptionally instructive in every respect. After centrifugating the urine, all the fluid is decanted except one or two drops. Then a droplet of egg albumin is taken up on a platinum loop and the loop is plunged into the sediment and agitated to mix it, with care not to cause production of bubbles. Then the mouth of the tube is held slanting on an object glass and with the platinum loop a droplet is spread all over the object glass, and two other slides are prepared in the same way. Before drawing out the sediment, the loop is singed to be sure that no undissolved albumin is sticking to it. He regards the method as extremely practical and instructive. His first publication on the advantages of impregnation of the sediment with human serum date from 1914.

Boletin de la Asociacion Medica de Puerto Rico

December, 1917, **13,** No. 116

90 *Military Medical Service in History. Editorial.—p. 131.
91 *Analysis of Diabetic Foods. R. del V. Sarraca.—p. 135.

90. **The Military Medical Service Through the Ages.**—Homer referred in the Iliad to the great value of the services rendered by the sons of Esculapius in the Grecian army, and the kings of Persia and Macedonia had Greek physicians to look after the health of their armies in their various campaigns. In all ancient states the duty of bearing arms was incumbent on all the citizens, including the medical men, so there were always some with the armies. Even in the days of Alexander we find records that the physician had to suffer from the transgression of the laws of hygiene by his patients. Alexander condemned the physician, Claucus, to death because a certain friend of his, who had been kept on a restricted diet, feasted on chicken and wine while the physician was at the theater, and died therefrom. Not until the nineteenth century was there any organized medical department of the army, but since then the importance of this branch of the service has been recognized more and more. The editional concludes: "We physicians of Puerto Rico have many and favorable opportunities for serving in our professional capacity, but it will be necessary for this to join some of the medical training camps which have been founded at different points in the United States. We are going to give the nation a contingent of men who will need physicians, and physicians trained for the task, as is now recognized to be necessary for efficient service. Puerto Rico physicians who are qualified and who would like to go will not lose this opportunity for serving their country and humanity, lending their valuable aid to the cause of democracy and civilization."

91. **Diabetic Foods.**—This report was prepared at the request of the Porto Rico Medical Association and was read at the annual meeting. The laboratory of the national public health service analyzed samples of the diabetic foods sold in Porto Rico and the results are tabulated in full detail. The findings in United States laboratories and experiment stations are tabulated likewise for comparison. The five foods bought in the local markets represent only from 337 to 701 calories, an average of 562 calories to the pound, so that it would be necessary to eat 7 pounds a day to make up 3,500 calories. The conclusions of the writer are to the effect that the best presentation of the matter of diabetic foods is that of Dr. F. Nicholson in the *British Medical Journal,* 1917, **1,** 82. He discards all the diabetic foods of commerce and has prepared from peanuts, in the patient's own home, a nutritious and palatable bread that can be sliced and keeps well. The peanuts are dried, shelled, and the nuts ground. To 8 ounces are added 2 ounces of casein, obtained by coagulating milk with lemon juice or rennet; salt to season, and 12 ounces of well beaten whites of eggs. The whole is thoroughly mixed and baked in a pan. This produces an inexpensive preparation that his patients have eaten with relish for two years to date of writing.

Prensa Medica Argentina, Buenos Aires

Dec. 10, 1917, 4, No. 19

92 *Cultivation of Sarcoma Cells. A. H. Roffo.—p. 251.
93 *Abscess of Occipital Lobe. T. Martini and J. I. Berterini.—p. 254.
94 Dangers of Optochin in Pneumonia. E. P. Camou.—p. 257.

92. **Cultivation of Sarcoma Tissue in the Test Tube.**—Roffo gives fifteen microphotographs of tissue from white rats' spindle-cell sarcoma cultivated in blood plasma from the same animal or a hen. The cells grew well for six or seven days but then died off unless transplanted. Renovation of the nutrient medium intensified the proliferation of the cells. The cells may undergo morphologic differentiation until they show the spindle shape.

93. **Abscess in the Occipital Lobe.**—The man had complained of intense headache for two months, vertigo and other symptoms suggesting a cerebellar tumor. There was a history of a suppurative process in the ear two months before. The man was delirious or unconscious when first seen and it proved impossible to determine the site of the lesion. Death soon followed and necropsy revealed two abscesses in the occipital lobe, evidently from blood-borne infection, as the abscesses were in the center of the lobe, not communicating with the surface. One seemed to be old and encysted. The other was recent and had evidently just perforated into the lateral ventricle, but the symptoms had all pointed to the cerebellum.

Revista de Ciencias Medicas de Barcelona

December, 1917, **43,** No. 12

95 *Lumbar Puncture in Children. R. Raventos.—p. 509.

95. **Lumbar Puncture in Children.**—Raventos declares that pediatrics has benefited by lumbar puncture more than any other branch of medicine. The neglect to determine the germs in the cerebrospinal fluid has been responsible for many deaths, he is convinced, as this alone permits proper treatment. He reiterates the facility and harmlessness of lumbar puncture in children, showing in numerous illustrations the exact anatomic conditions in the region as determined on fifty-five cadavers including some prematurely born infants; all but six were less than 1 years old, the oldest was 5. He emphasizes that lumbar puncture is much easier in children than on adults. The distance from the skin to the dura is less, and the meningeal sac reaches lower down proportionately than in adults; the tissues are less resistant; the spine is more elastic, and the vertebrae can be spread farther apart than in adults, while the spinous processes are shorter and horizontal. He gives some illustrations of the trunk cut across horizontally at the point where lumbar puncture is made, and tabulates the various measurements in the fifty-five cadavers as also the weight in comparison to the thickness of the subcutaneous tissue. He always makes a point of taking up a fold in the skin to measure the thickness of the soft parts. One half the thickness of the fold represents

the approximate distance the needle has to travel before it reaches the bone. To determine the size of the spinal cavity, he compared it with the circumference of the cornea in the fifty-five cadavers, and found the figure representing the corneal limbus identical with that representing the anteroposterior diameter of the spinal canal or smaller; it was never a larger figure. Hence it may be assumed that the needle can be introduced to a depth equivalent to the figure representing the thickness of the soft parts, plus a figure less than the limbus of the cornea. He estimated the capacity of the spinal canal in the cadavers, seated, after evacuation of all the spinal fluid, injecting a stained fluid until it appeared at an opening in the occipital region. This capacity was found to be 3 or 4 c.c. in a girl infant weighing 2,070 gm.; 12 c.c. in a girl of 16 months weighing 4,900 gm.; 11 c.c. in boy 1 year weighing 5,030 gm; 6.5 c.c. in boy infant of 13 months weighing 4,700 gm., and 30 c.c. in boy of 3 years and also in a girl of 5. Among the minor points mentioned is that when the head is bent forward the fluid will flow downward into the frontal region, and thus be shut off from the spinal canal completely. One of his illustrations shows the transverse section of the trunk of a child of 20 months with the lumbar puncture needle in place. The distance through the soft parts is 12 mm., the diameter of the spinal canal, 14 mm. With a needle just 13 mm. long, the tip enters the spinal canal while there is no possibility of injuring any organ. Another illus[illegible]on shows the instrument, something like a monkey [illegible]ch, with which he takes up the longitudinal fold in the [illegible] parts to measure the depth down to the bone.

Revista del Instituto Bacteriologico, Buenos Aires

November, 1917, **1**, No. 1

96 *Specific Precipitating Properties of Antivenom Serums. B. A. Houssay and J. Negrete.—p. 15.
97 The Typhoid Epidemic at Lomas. M. V. Carbonell and H. Riganti. —p. 33.
98 *Experimental Poliomyelitis. R. Kraus and L. Kantor.—p. 43.
99 *Miostagmin Reaction with Cancer. A. H. Roffo.—p. 53.
100 *Plants Poisonous for Cattle. C. Flores and B. A. Houssay.—p. 59.
101 Para-Ozena Microbes. C. Zanolli.—p. 101.
102 Present Status of our Knowledge of the Coccobacillus Acridiorum of d'Herelle. B. Barbara.—p. 107.

The Revista.—This is the first issue of this official organ of the Bacteriologic Institute of the National Public Health Service of Argentina. In this number the conclusions of all but the last articles are repeated in Spanish, in German, in French and in English. This number also contains a five-page list of the communications from this institute which have been published since 1913 in various scientific journals. Many of them have been summarized in these columns, among them Roffo's work on cancer and Kraus and Penna's work on treatment of anthrax with normal beef serum.

96. **Antivenom Serum.**—Houssay and Negrete conclude their study of the precipitins in antiserums for snake poison with the statement that the antitoxic power of the antiserum cannot be gaged by the precipitating power, as there seems to be no parallelism between them. As a rule, however, the strongest antiserums display the greatest precipitating power.

98. **Experimental Poliomyelitis.**—Kraus and Kantor obtained virus from the Rockefeller Institute of New York but found it impossible to reproduce the disease in the four Paraguayan monkeys inoculated with the virus. Two imported macacus monkeys inoculated speedily developed and died from the disease, presenting every evidence of poliomyelitis. These experiences confirm Flexner's statements in regard to the nonsusceptibility of the monkeys of the New World to experimental poliomyelitis. Experiments on rabbits and guinea-pigs were likewise negative, but they believe that it may yet be possible to reproduce the disease in rabbits after passage of the virus through sheep or some other animals.

99. **The Miostagmin Reaction with Cancer.** — Roffo announces that a more dependable antigen than lecithin for the miostagmin reaction can be prepared from the spindle cell sarcoma of white rats. Positive results were obtained with it in 110 specimens of serum from clinical cases of cancer or from rats with cancer. The findings were positive in all except in 3.64 per cent. of the human cases.

100. **South American Plants Poisonous for Cattle.**—The plant studied was the *Baccharis coridifolia* D. C. There are about 300 species of baccharis in South America, many of them known to be poisonous. If it were not that cattle instinctively avoid them, stock raising would be impossible in many regions. The accidents from eating the plants generally occur in animals from regions where the plants are not found, or when the cattle are driven to them by drought killing off their usual food. When cattle are received from regions free from this baccharis, they are driven into a corral and a smudge of the plant is made to induce coughing and lacrimation, and their gums are rubbed with the plant, after which they never touch it. The research on the toxicity tested on numerous species of animals, poultry, pigeons, frogs, and invertebrates showed that the blossom and leaf contain most of the poison As the animals refused to eat it, the plant was administered in pills or solution. It does not seem to have a caustic action in the human mouth or in the dog conjunctiva, not even with concentrated extracts. The poison acts mostly on the nervous system, with also toxic vasomotor, secretory and motor disturbances in the digestive apparatus of most of the animals tested. The local names of the plant are mio-mio, mio and romerillo. The North American species are mostly of the aster family.

Revista de Medicina y Cirugia, Havana

January 25, 1918, **23**, No. 2

103 *Vital Statistics in Cuba. R. J. Fosalba.—p. 31.
104 *Rectal Exploration in Diagnosis of Pregnancy and in Labor. J. F. Arteaga.—p. 41.
105 Dietetic Laboratories. D. F. Ramos and J. A. Simpson.—p. 45.
106 History of Medical Press of Cuba. M. R. Casabo.—p. 50.

103. **Vital Statistics.**—In discussing ways and means to ensure accuracy in the vital statistics of Cuba, Fosalba mentions a special form of occupational morbidity, namely, the tendency to abortion of women employed in tobacco factories. He cites reports published in Italy, Spain and elsewhere, on the relations between chronic tobacco poisoning and the reproductive organs in women. Zuccardelli and Valdagni called attention long ago to the sterility of women working with tobacco, and Fosalba's five years of investigations in the tobacco factories of Santiago, Havana and elsewhere, and the tobacco plantations of Vuelta Abajo have confirmed this phenomenon.

104. **Rectal versus Vaginal Examination.**—Arteaga cites recent writers who advocate rectal exploration in labor, and describes experiences of his own with it. His conclusions are unfavorable as to its convenience and reliability.

Semana Medica, Buenos Aires

Oct. 25, 1917, **24**, No. 43

107 Vaccine Treatment of Diphtheria. II. (Haptinogenina.) J. Mendez and L. A. Garcia.—p. 463.
108 *Interlobar Pleurisy. J. Destefano.—p. 482.
109 Care of the Sick and Poor at Buenos Aires. E. R. Coni.—p. 485. Continuation.

Nov. 8, 1917, **24**, No. 45

110 *Hygiene of the Eyes. P. B. Ferro.—p. 517.
111 History of Medicine. L. Bard.—p. 522.
112 *Tests with Fluorene. L. Guglialmelli and A. Delmon.—p. 526.

108. **Masked Interlobar Pleurisy.**—In the case described the symptoms at the base seemed to indicate purulent pleurisy of the general cavity but resection of the ninth and then of the eighth rib failed to show pus. Resection of the sixth rib opened up the pus collection. The symptoms were the result of merely a secondary cortical pleuritis at the base, of a pneumonic type, the primary trouble being a subacute purulent interlobar pleurisy. The case is a good example of what Chauffard calls the pseudopleuritic syndrome of the base. In this case there was no walling off of the process, as usually occurs. The symptoms at the base did not develop until about four weeks after the first symptoms which had been intermittent pain in the left side, with a slight dry cough but no fever. Puncture in the sixth interspace showed pus and the operation followed six days later.

110. **Hygiene of the Eyes.**—Ferro expatiates on the necessity for restricting the prescribing of eyeglasses to scientifically trained physicians, and the making of the glasses to

opticians certified by the National Public Health Service as known to be competent and equipped for the work. Any firm can apply for the certificate. No others should be allowed to sell eyeglasses, except those of plain glass. A physician's prescription should always be required except to replace broken glasses. Financial association of physician and optician is on the same plane, he thinks, as association of physician and druggist. The measures advocated above he has proposed to the National Public Health Service, hoping that it may prove the basis for legislation on the subject.

112. **Fluorene Color Reactions.**—These reactions have been found useful in differentiating the furfurols produced in distilling various carbohydrates, etc.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Dec. 8, 1917, **2**, No. 23

113 *Potato Flour Biscuits. E. C. Van Leersum.—p. 2025.
114 *Constitutional Eosinophilia.. H. D. Klinkert.—p. 2039.
115 The State of Nourishment of Amsterdam Schoolchildren. M. R. H. Van Den Berg.—p. 2048.
116 *Perforation of Gallbladder in Pregnant Woman. W. H. A. Van Os.—p. 2052.

113. **Potato Flour Biscuits.**—Van Leersum has been experimenting with potato flour mixed with substitutes for gluten, and reports encouraging results. The bread and biscuits rise and bake porous and crisp. He does not mention the substitutes for gluten he used, as his experiments in this line are not concluded. The German government gave prizes to stimulate production of potato flour, and he relates that 900 drying establishments have been founded there during the war.

114. **Constitutional Eosinophilia in Connection with Gout.**—Klinkert asserts that study of familial eosinophilia has cleared up the conception of the gouty and the neuroarthritic diatheses, asthma, urticaria, etc. These are all the result of a constitutional abnormal condition of the vegetative nervous system. This disturbance in the innervation is manifested usually by a constitutional and familial eosinophilia. It may be further manifested by asthma, hay-fever, urticaria, epilepsy or gout, these being all clinical equivalents in adults; children are liable to present the exudative diathesis. Klinkert shows how this conception of deranged innervations throws light on these various disturbances and links them, and the various affections in the families with constitutional eosinophilia confirm these causal relations and the influence of the vicious circle. Asthma and hay-fever, as well as gouty joints, are thus explained as a nervous-gouty catarrhal state. The acute attack of gout is an acute trophoneurosis. The most serious localization of the gouty tendency, however, is in the kidneys, and this adds, secondarily, a new element to the pathology of gout, namely, retention of uric acid. The mistake has been made that this uricacidemia is assumed to be the cause of gout, when in fact it is secondary to the neuro-arthritic diathesis. The retention of uric acid sets up a vicious circle between the attacks of gout; urticaria may result as an equivalent of the acute attack of gout. In the intervals between the attacks of gout, if the elimination of uric acid is below normal, we can assume that the kidneys are already more or less pathologic. As Lecorche says: *Quand la gravelle cesse, la goutte articulaire commence.* Asthma, hay-fever and gout are more common in men than in women, possibly because the thyroid seems to function less in the male. In women the gouty tendency becomes more manifest at or after the menopause, when the thyroid may be supposed to become less active. Falta's report that the elimination of uric acid is usually low in exophthalmic goiter fits into the argument, as also Trousseau's observation that asthma, enuresis nocturna and similar neuroses disappear under the influence of an acute febrile infectious disease. This whips up the sympathetic nervous system, and it overcomes the hitherto prevailing abnormal influence of the autonomic nervous system. The pathologic hyperfunctioning of the autonomic nervous system is responsible for the sluggish metabolism, the sluggish nutrition, Landouzy's *diathèse bradytrophique,* the eosinophilic neuro-arthritic diathesis—all these are various terms for the gouty constitution.

116. **Perforation of Gallbladder in Pregnant Woman.**—The woman had typhoid just before her ninth pregnancy and five months later developed gallbladder empyema. Cholecystectomy followed twenty-four hours after perforation with extensive peritonitis, but the pregnancy proceeded undisturbed to normal delivery four months later.

Hospitalstidende, Copenhagen

Jan. 2, 1918, **61**, No. 1

117 *Carbon Monoxid Poisoning. J. Bock.—p. 1.

117. **Carbon Monoxid Poisoning.**—Bock reports a case of poisoning from a defective stove. The body of the husband was found on the floor near the stove, and two-thirds of the hemoglobin in his blood had been transformed to carbon monoxid hemoglobin. The baby near him showed no signs of poisoning. The body of the wife was in the closed adjoining room and only one-fifth of her hemoglobin had been thus transformed, and she had evidently survived the man for several hours. Bock assumes that originally her blood had been as deeply poisoned as her husband's, but that she sought the bed room when she felt sick, and her blood gradually threw off the carbon monoxid gas. It would in another half hour or two have thrown it off altogether, and nothing would have been found to explain her death. Bock experimented on animals in connection with this case, and found that animals died even although all the carbon monoxid had been thrown off. Evidently the central nervous system becomes irreparably injured from the after-effect of the protracted asphyxia. In the medicolegal case described, the baby must have been kept in the adjoining room, as was known to be the custom, and was not brought out into the room with the stove until late, and was then placed near a window. Bock remarks that if the woman's body had not been found till all the hemoglobin had been thrown off, and if she had been living alone with her baby, the cause of her death might never have been cleared up.

Hygiea, Stockholm

Dec. 15, 1917, **79**, No. 23

118 *War Fractures of Jaw and Nose. J. A. Hedlund.—p. 1281.

118. **War Fractures of Jaw and Nose.**—Hedlund relates that he has made three trips to Germany to study the measures being applied there in treatment of war wounds of jaws and nose. He tabulates the data from forty cases at Düsseldorf and twelve from another hospital, both of which make a specialty of jaw and nose work. He says that treatment applied on the general principles of surgery, especially when a dentist and surgeon work together, gives very good results. Bone transplants are taken from the tibia or the crest of the ilium. For the nose, a skin, periosteum and bone flap from the ulnar region was used sometimes. Silver, ivory, etc., are cast off later, as a rule. The Indian or Italian method of flaps of soft parts were sometimes used. He gives a few illustrations, among them one of a device for fixation and extension of the jaw, with thumbscrew, which is applied from without.

Ugeskrift for Læger, Copenhagen

Dec. 27, 1917, **79**, No. 52

119 *Lymphogranulomatosis in Syphilitic. L. Melchior.—p. 2143.

119. **Lymphogranulomatosis in Syphilitics.**—Melchior reports two cases both in apparently robust men of 29 and 46 who died in a few weeks or months after beginning of vague symptoms suggesting pulmonary disease in one case and cardiovascular disease in the other. The general condition rapidly declined, with emaciation and collapse. Both had a positive Wassermann reaction, and necropsy revealed tumor-like hyperplasia in lymph glands and spleen and also in liver, lungs, peritoneum and bladder in one case, but no signs of tuberculosis. Analysis of these cases and of the literature seems to confirm the idea that if we do not accept lymphogranulomatosis as a disease *sui generis,* then there seems to be no reason why syphilis may not be one of the causes to induce it. At present therefore it is best to record the cases merely as lymphogranulomatosis in syphilitics.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 70, No. 12 | Chicago, Illinois | March 23, 1918

THE FUNDAMENTAL REQUIREMENTS OF ENERGY FOR PROPER NUTRITION

GRAHAM LUSK

Professor of Physiology, Cornell University Medical College; Scientific Director, Russell Sage Institute of Pathology, in affiliation with Bellevue Hospital

NEW YORK

From time to time, inquiries have come to this oratory as to the fundamental requirements of ergy for the proper nutrition of different individuals. It must be understood at the outset that portions of the data here presented are matters of established fact, repeatedly confirmed; others are based on unconfirmed observations of individual authorities, but probably correct; while still others are based on estimates as close to the actual state of affairs as one can now attain.

The data may thus be classified:

1. *Absolutely accurate.* Basal metabolism of all ages and sexes, and the increase in metabolism due to (*a*) standing; (*b*) walking; (*c*) carrying a load.
2. *Approximately accurate.* Metabolism in industrial pursuits.
3. *Hypothetic.* Metabolism of children during exercise.

The four charts which accompany this paper show the food requirements (1) of boys from birth to 16 years of age; (2) of soldiers at hard work; (3) of men in industrial pursuits, and (4) of women in industrial pursuits.

The weights of all the individuals here given include the weights of the clothes worn except in the case of children under 5 years of age. The metabolism, however, is calculated on the assumption that the weight with clothes was the naked body weight. Hence, the height of the metabolism as given represents that of individuals somewhat above the average nutritive standard.

METABOLISM OF BOYS FROM BIRTH TO 16 YEARS OF AGE

The weights and heights given in Chart 1 are the average for boys of the same age, as given by Boas.[1] The basal metabolism as calculated is that for well nourished boys who are a little above the average weight of the average boy. The following data were used in making the calculations:

Child at Birth.—The basal metabolism is 48 calories per kilogram of body weight per day.[2]

Boy of from 6 to 12 Months.—The basal metabolism is 60 calories per kilogram.[3] Severe crying increases the basal metabolism 40 per cent. per hour. If the mechanical work done by the baby of 6 months were the equivalent of four hours of crying, the heat production would be increased 29 calories. Since 15 per cent. of the calories ingested are retained for growth, 70 more calories must be added to the basal of 428 calories, making a required total of 537.

Boy of 2 Years.—Consult the report on the metabolism of a boy of 2½ years weighing 11.5 kg.[4]

Boys of from 6 to 16 Years.—Based on curves given in the work of Du Bois,[5] and on the data showing that boys of 12 have a basal metabolism of 50 calories per square meter per hour, and on unpublished work of the same author which gives 44 calories for the same unit of measure when the boys are 14 years old.

Effect of Exercise.—There are few data on which to base the heat production due to the muscular activity of boys. It is probable that an active boy produces twice the number of calories measured by his basal metabolism, whereas for one taking little exercise, a 50 per cent. additional amount undoubtedly suffices. The study of Gephart[6] has shown that boys between 13½ and 16 years of age who actively indulge in athletic sports ingest 5,000 calories daily in their food, or threefold their basal requirement of energy. It should be remembered that an active boy is usually very active.

The metabolism of girls has never been investigated.

METABOLISM OF SOLDIERS

In a paper prepared by the author at the request of Major Murlin, in charge of the Food Division of the Sanitary Corps of the United States Army,[7] the following facts were brought out. It appears that the calories representative of the level of the basal metabolism of a man at the age of 35 years and of a given height are approximately the basal requirement of energy during the active adult years between 20 and 50. A man of a given height and of the average weight at 35 years of age may gain or lose 10 per cent. of his weight without altering the basal metabolism more than 5 per cent. The statistical data for the weight of men of given height and 35 years old were taken from the statistics of the medico-actuarial investigation of 1912.

---

[1] Boas: The Growth of Toronto Children, Report of United States Commissioner of Education, 1896-1897, **2**, 1541.

[2] Bailey and Murlin: Am. Jour. Obst., 1915, **71**, 526. Benedict and Talbot: The Physiology of the Newborn Infant, Carnegie Institution of Washington, 1915, Pub. 233.

[3] Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Ten Hospital Children Between the Ages of Two Months and One Year, Am. Jour. Dis. Child., February, 1915, p. 81.

[4] Magnus-Levy and Falk: Arch. f. Physiol., 1899-1900, Supplement, *p. 368.*

[5] Du Bois, E. F.: The Metabolism of Boys 12 and 13 Years Old Compared with the Metabolism at Other Ages, Arch. Int. Med., June, 1916, p. 887.

[6] Gephart, F. C.: Report of a Dietary Study of St. Paul's School, Boston Med. and Surg. Jour., 1917, **176**, 17.

[7] Consult also Lusk, Graham: Food in War Time, W. B. Saunders Company, Philadelphia, 1918.

From the height-weight chart of Du Bois, the surface area in meters of the individual was calculated, and this was multiplied by 40 to give the basal metabolism per hour. The *basal metabolism* is the amount of heat, as measured in calories, which is produced by an individual lying in bed completely relaxed, at which time the oxidative activities are at their lowest ebb.

When a man stands upright or sits in a chair, his basal metabolism is increased 10 per cent. If he should be awake in the hospital ward sixteen hours and asleep during eight hours, his heat production would be:

$$(100 + [10 \times \tfrac{2}{3}]) \times \text{calories of basal metabolism}$$

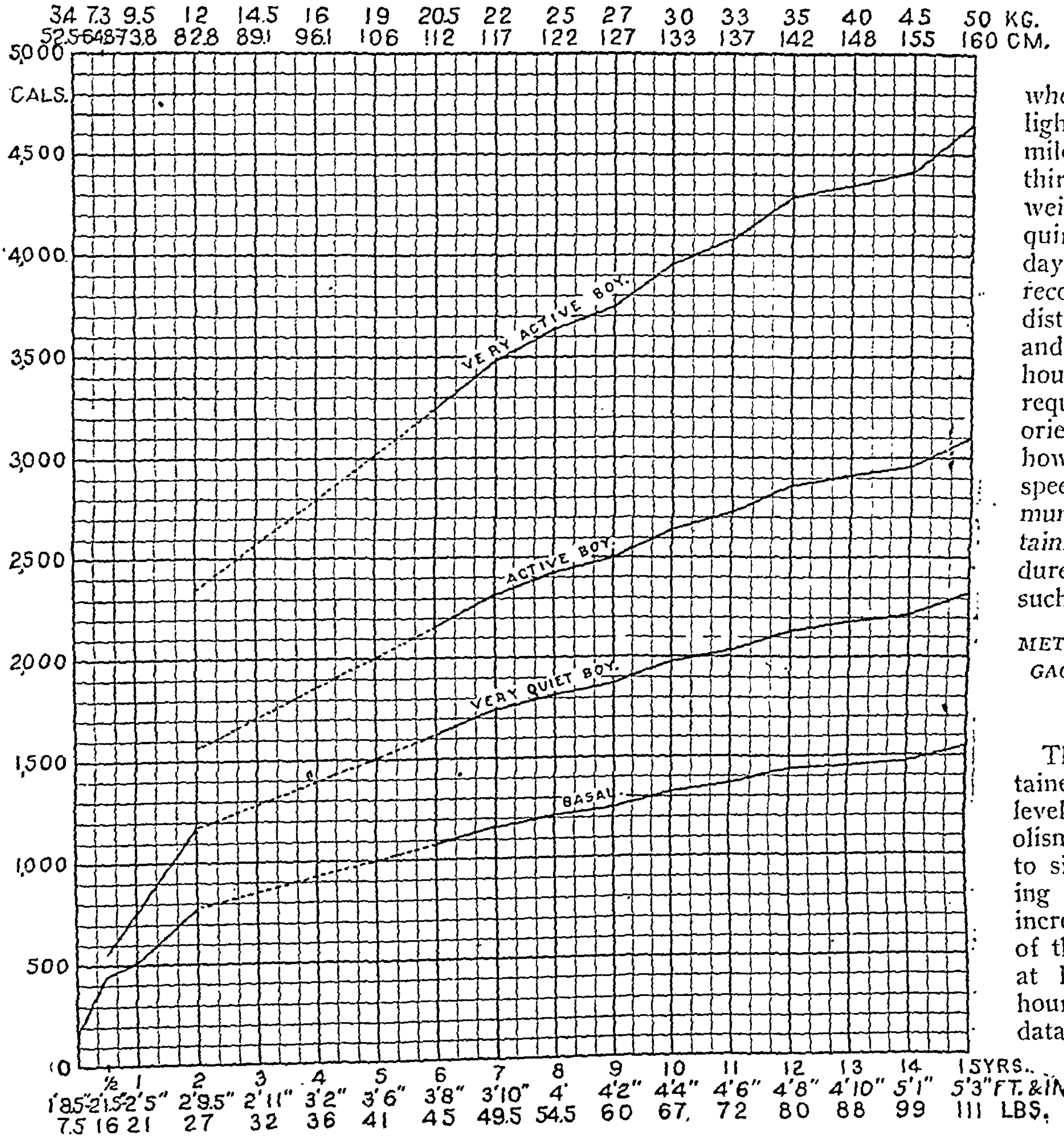


Chart 1.—Metabolism in calories per day of boys from birth to 15 years of age.

If a soldier walks at the rate of 3 miles an hour, it requires an additional amount of energy equivalent to 1.1 calories to move a pound of his body through this distance each hour.

Since a soldier carries equipment weighing 44 pounds, and this is moved at the same expense of energy as the body weight when a speed of 3 miles an hour is attained, it is evident that 44 × 1.1 = 48.4 calories will be required each hour for this amount of additional work. A walk at this rate is accomplished at a minimum expenditure of energy, and hence 3 miles per hour is known as the *maximum economic velocity*.

From this analysis it appears that the average soldier, or one of 5 feet 8 inches in height, requires 4,100 calories for this long day of exceptionally hard work. This is more than the 3,700 calories actually taken by a soldier in the average routine.

The 30 mile hike has been chosen as a type requirement because it may well be taken to represent the equivalent of the maximum of mechanical accomplishment in the day-to-day routine of a man doing the hardest labor, be he of the military or the civilian population. I have elsewhere estimated that to run lightly clad a distance of 40 miles in seven hours and thirty-three minutes, a man weighing 155 pounds requires 5,500 calories per day; whereas to make a record run of 80 miles, the distance between Chicago and Milwaukee, in fifteen hours, calls for an energy requirement of 9,200 calories. Human machines, however, are seldom speeded up to this maximum of capacity, and certainly could not long endure frequent repetition of such strain.

METABOLISM OF MEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

These results were obtained by adding to the level of the basal metabolism plus the increase due to sixteen hours of standing or sitting, the further increment due to the work of the individual employed at his task during eight hours. The last named data, both for men and for women, were obtained by Becker and Hämäläinen,[8] with the exception of those concerning typewriting, which are based on the careful work of Carpenter.[9]

TABLE 1.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF MEN

Occupation of Men	Extra Calories of Metabolism per Hour Due to Occupation
Tailor	44
Bookbinder	81
Shoemaker	90
Metal worker, filing and hammering	141
Painter of furniture	145
Carpenter making a table	164
Stonemason chiseling tombstone	300
Man sawing wood	378

The extra calories per hour attributable to occupation may be given as in Table 1.

---

[8] Becker and Hämäläinen: Skandin. Arch. f. Physiol., 1914, 31, 19

[9] Carpenter: Jour. Biol. Chem., 1911, 9, 231.

Chart 3 makes no allowance for the muscular activities involved in dressing and undressing, with other minor activities uncertain in quantity. Perhaps 200 calories should be added for these. If the man walks to and from his business, 1.1 calories for each pound of body weight moved 3 miles should be added.

METABOLISM OF WOMEN ENGAGED FOR EIGHT HOURS IN INDUSTRIAL PURSUITS

The basal metabolism of women is 37 calories per hour per square meter of body surface, or 93 per cent. of that of men, measured by the same standard. To the basal metabolism of a day was added 10 per cent. during a period of sixteen hours, representing the extra metabolism due to standing or sitting; and to this, again, was added the increment of energy necessary for the accomplishment of the mechanical work at hand.

The extra calories attributable to occupations may be given as in Table 2.

TABLE 2.—EXTRA CALORIES PER HOUR ATTRIBUTABLE TO OCCUPATIONS OF WOMEN

Occupation of Women	Extra Calories of Metabolism per Hour Due to Occupation
Seamstress, needle work	6
Typist, 50 words per minute	24
Seamstress, using sewing machine	57
Bookbinder	63
Housemaid (moderate work*)	81
Laundress (moderate work)	124
Housemaid (hard work*)	157
Laundress (hard work)	214

* Cleaning windows and floors, scouring knives, forks and spoons, scouring copper and iron pots.

To the values given in the curve in Chart 4 (see page 825) may be added [illegible] calories for such movements as are involved in dressing and undressing, and other extra motions not definitely measurable. If the person walks to and from her place of employment, 1.1 calories should be added for each pound of body weight moved 3 miles.

It may be further remarked that the work of a hard working laundress could scarcely be accomplished by a woman 4 feet, 8 inches in height.

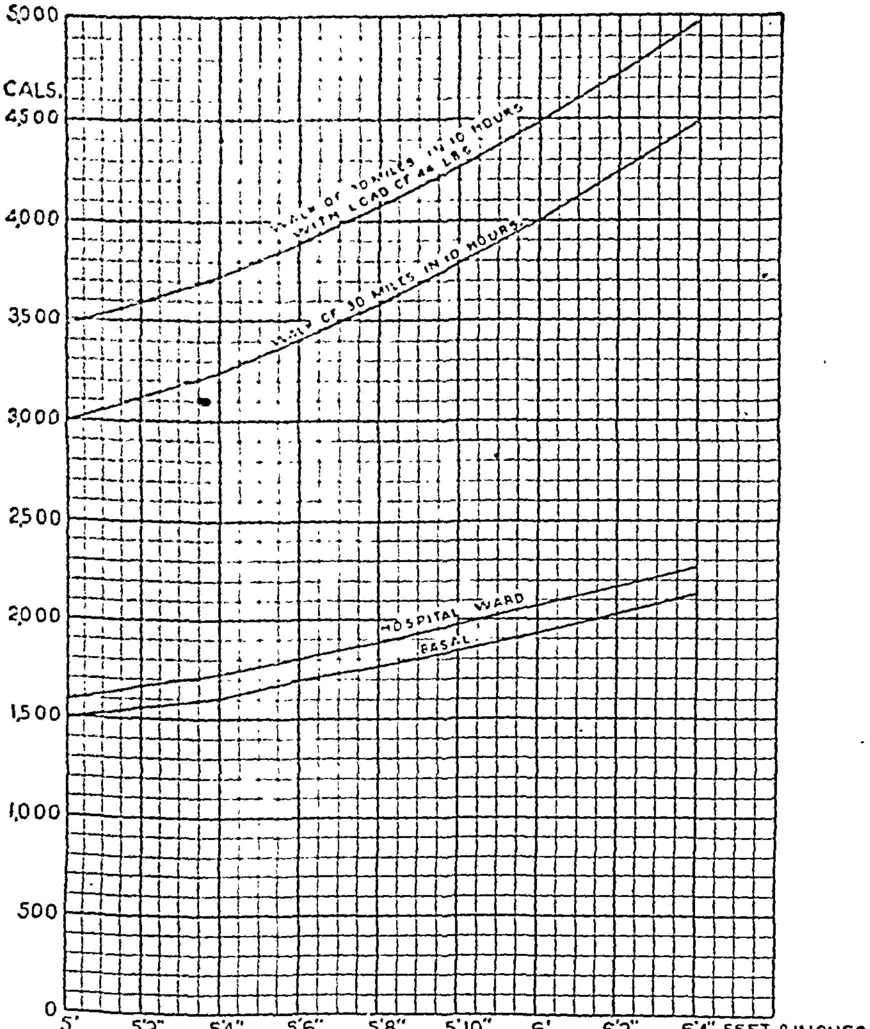


Chart 2.—Metabolism in calories per day of a soldier making a forced march of 30 miles at the rate of 3 miles per hour.

GENERAL APPLICATION OF THE RESULTS

The average height of an American woman is 5 feet, 4¼ inches, and of an American man is 5 feet, 8½ inches, according to the medico-acturial investigations of 1912. The corresponding figures may therefore be employed in calculating the food requirements of American communities. It is evident that the data given for boys, women and men do not cover the industrial or home economic situation; but, meager though they are, they afford the best available information.

REDUCTION IN THE FOOD REQUIREMENT

It must be remembered that the values given here are maximal values based on individuals in better than the average nutritive condition. It has been pointed out by Allen and Du Bois[10] that the basal requirement of energy in men may be largely reduced through emaciation. It has furthermore been shown for the dog by Anderson and Lusk[11] that when a given amount of work is to be done it is always accomplished at the expense of exactly the same amount of extra calories, no matter what the nutritive condition of the animal may be; it is the same on the thirteenth day of starvation as when the dog is fully nourished. Undoubtedly, the same principle applies to man. Thus, Taylor and Kellogg[12] write:

> The industrial classes of Germany who have received not to exceed 2,000 calories per capita per day for nonworking individuals have lost weight; they are trained down hard like athletes. There was no evidence in Germany up to March, 1917, that the health of these individuals had suffered.

This method of saving calories is illustrated by the two instances of undernutrition in Table 3. Both were cited by Allen and Du Bois. The first of the two subjects had been investigated by Magnus-Levy.

It is evident, therefore, that one may reduce the basal requirement of energy by undernutrition, and

---

[10] Allen, F. M., and Du Bois, E. F.: Metabolism and Treatment in Diabetes, Arch. Int. Med., June, 1916, p. 1010.

[11] Anderson and Lusk: Jour. Biol. Chem., 1917, 32, 421.

[12] Taylor and Kellogg: The Food Problem, New York, The Macmillan Company, 1917, p. 90.

TABLE 3.—TWO INSTANCES OF UNDERNUTRITION

	Weight Pounds	Height Ft. In.	Basal Metabolism Calories	Calories per Hour per Sq. M. of Surface
Case 1:				
Original measurements ..	115	5—2	1,486	40.5
After undernutrition	84		1,077	33.0
Difference	31		409	
Case 2:				
Original measurements ..	163	6—2	1,920*	40.0
After undernutrition	101		1,032	25.4
Difference	62		888	

*Calculated from a surface area of 2 square meters on the basis of the height-weight formula, and 40 calories per hour per square meter of surface as the standard of normal nutrition.

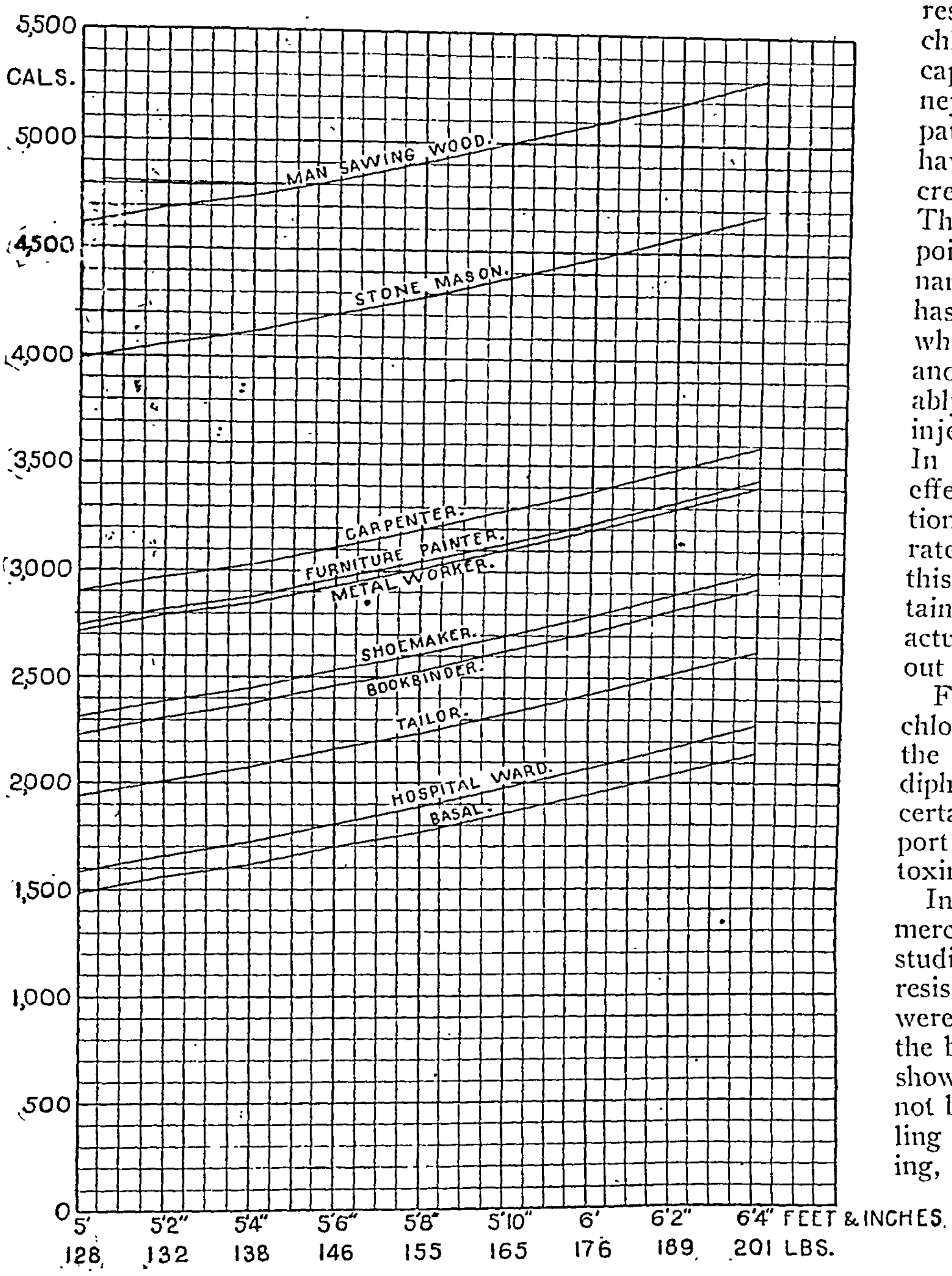


Chart 3.—Metabolism in calories per day of men engaged for eight hours in various industrial pursuits.

that this process may largely economize food, but that to accomplish a given amount of work a fixed amount of food-fuel is required, irrespective of the nutritive condition of the organism.[13] It may become necessary for Americans to "train down hard" as people in the warring nations of Europe are forced to do, and it is important to realize that this may be done without detriment to health. Certainly, the practice of habits of gluttony or of waste of food must be regarded as ethically abhorrent in days like these, when whole peoples are starving to death.

---

[13] Anderson and Lusk: Proc. National Acad. Sc., 1917, 3, 386.

THE PRINCIPLES OF TREATMENT IN MERCURIC CHLORID POISONING

AN EXPERIMENTAL STUDY *

W. D. SANSUM, M.D.
CHICAGO

The passage through the body of very large quantities of water by sustained intravenous injections of glucose at supertolerant rates has been observed to result in a marked flushing out of urea, chlorids and other substances that are capable of excretion by way of the kidneys. It would seem rational to anticipate that this procedure might perhaps have clinical value in hastening the excretion of certain water soluble poisons. The idea of an actual flushing out of poisons by the production and maintenance of hyperdiuresis is an old one. It has been emphasized by M. H. Fischer,[1] who used particularly saline solutions, and by Turrettini,[2] who reported favorably on the use of intravenous glucose injections in mercuric chlorid poisoning. In connection with other work on the effects of sustained intravenous injections of sugar, salts, etc., at different rates, experiments have been made in this laboratory for the purpose of ascertaining the extent to which one may actually wash poisons of various sorts out of the body by this method.[3]

For experimental study, mercuric chlorid was selected as representative of the heavy metal group of poisons, and diphtheria toxin as representative of a certain type of bacterial poison. A report on the experiments with diphtheria toxin follows.[4]

In this series of experiments with mercuric chlorid poisoning, we have studied especially the influence of diuresis; and although no beneficial results were obtained, the study is reported with the belief that it is of clinical interest in showing clearly what can and what cannot be accomplished in the clinical handling of cases of mercuric chlorid poisoning, and to emphasize the uselessness of all known forms of eliminative treatment in cases in which the relatively small but uniformly fatal dose of mercuric chlorid has been once absorbed. The study establishes the minimum uniformly fatal dose of mercuric chlorid with greater sharpness than has been done before. It also brings out the probable reason for the frequent recovery of patients both treated and untreated who have taken quantities of mercuric chlorid which far exceed the minimum lethal dose. It may be stated in the beginning that this study leads us to the belief that efforts to secure the elimination of this poison from the body, once it has been absorbed, are of very doubtful utility, and that the essential indication in the treatment of mercuric chlorid poisoning is to prevent the absorption of a fatal dose.

---

* From the Otho S. A. Sprague Memorial Institute, Laboratory of Clinical Research, Rush Medical College.

[1] Fischer, M. H.: Edema and Nephritis, New York, John Wiley & Sons, 1915.

[2] Turrettini: Rev. méd. de la Suisse romande, 1915, 35, 204.

[3] A fourth detailed report covering phases of work outlined in a preliminary communication (Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2067).

[4] Sansum, W. D.: The Influence of Forced Diuresis in Experimental Poisoning with Diphtheria Toxin, The Journal A. M. A., to be published.

The glucose solutions, varying in strength from 18 to 54 per cent., were made by dissolving a chemically pure product prepared in this laboratory in freshly distilled water. In some of these experiments sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solutions to give them the salt content of Ringer's solution. Hypertonic salt solutions (Fischer's) also were used. The injections were made with a volumetric pump. Two pumps were used in some cases, the second to supply the fluid necessary to preserve the water balance. In these instances the discharge tubes were anastomosed to form a common delivery tube.

The mercuric solutions were 0.1 per cent. (1 mg. per cubic centimeter), dissolved in 0.8 per cent. sodium chlorid.

THE MINIMUM UNIFORMLY LETHAL DOSE OF MERCURIC CHLORID

When this poison is given by mouth, the fatal dose is found to be extremely variable and comparatively large, owing to many factors and especially those preventing uniformity of absorption (emesis, purgation, the character and amount of food contained in the alimentary tract, etc.). When given by this route, the mercuric chlorid, moreover, passes at the initial absorption rate to the liver, an organ that may differ greatly in its glycogen content and its power to retard the passage of poisons into the blood of the vena cava under varying physiologic conditions. Fantus,[5] working with rabbits, found that in unstarved animals the surely fatal dose by mouth was as high as 40 mg. per kilogram. When given subcutaneously, variations in the absorption time also appear to occur, owing in part to the fact that the tissues at the injection site become necrotic and slough. One of our dogs was given subcutaneously 5 mg. and another 10 mg. of mercuric chlorid per kilogram. Both animals lived, and in both the sites of injection became necrotic and sloughed. By this method, at any rate, we did not succeed in establishing a minimum uniformly lethal dose with sufficient sharpness for a satisfactory control.

To eliminate these uncertainties of absorption, etc., it was decided to determine the least uniformly fatal dose by intravenous injection, and in this way we found a small and very uniform value. Meyer and Gottlieb[6] state that 100 mg. is the minimum dose that has proved capable of causing death in human adults when taken by mouth (1.4 mg. per kilogram on a 70 kg. basis). American textbooks give a higher figure, namely, from 3 to 5 grains, which, for a body weight of 70 kg., would be equivalent to from 2.7 to 4.6 per kilogram of body weight.

The least uniformly fatal dose was determined by us in a series of nine dogs. Each of the first three received intravenously 3 mg. of mercuric chlorid per kilogram as 3 c.c. per kilogram of a 1:1,000 solution. The injections administered by means of the volumetric pump were always made to consume exactly one-half hour except when otherwise noted. Two of these animals lived, and the third died in seven days. Each of the second three then received 4 mg. per kilogram as before. All of these animals died, the duration of life being four, four and eight days, respectively. None of them developed anuria. The third three dogs each received 5 mg. per kilogram as before. All of these animals died after two, four and six days, respectively. All of them developed anuria. These fatal doses agree approximately with the accepted minimum lethal doses for adult human beings, and in such human cases the inference would be that the patients absorbed all of the dose swallowed. We therefore chose 4 mg. per kilogram as the minimum uniformly fatal dose; and when it was desired to produce anuria, 5 mg. per kilogram were given.

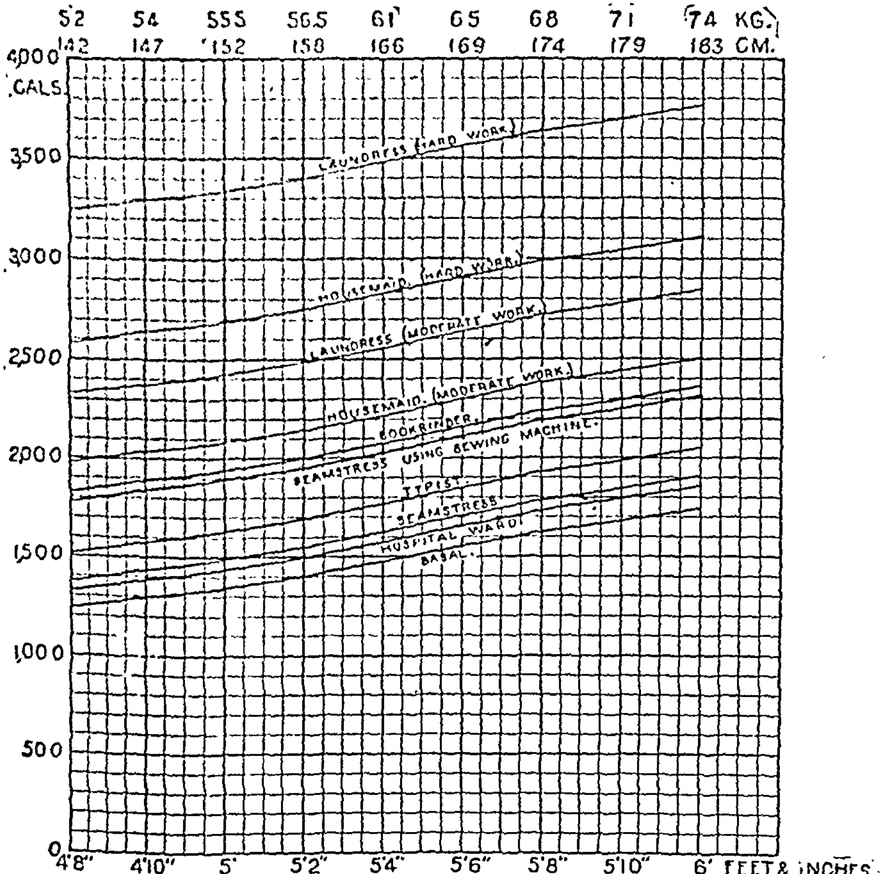


Chart 4 (accompanying article by Lusk, p. 821).—Metabolism in calories per day of women engaged for eight hours in various industrial pursuits.

EXPERIMENTS

Our first attempt was to determine whether it was possible to establish a flow of urine in an animal made anuric by the smallest dose of mercuric chlorid capable of producing this phenomenon. A dog was given intravenously 5 mg. of mercuric chlorid per kilogram in the form of a 1 : 1,000 solution. Twenty-four hours later the dog had passed no urine, but 20 c.c. of thick albuminous urine were obtained from the bladder by catheter. To determine whether the animal was anuric, 200 c.c. of water were given by stomach tube, and four hours later 5 drops of urine were obtained from the bladder. Then 300 c.c. of 0.8 sodium chlorid were given, and two hours later, 3 or 4 drops of fluid were obtained from the bladder. This animal was considered, therefore, to present an anuria of true renal origin. Such a precaution as the foregoing was deemed necessary because in dogs there is often such a suppression of urine associated with the violent catharsis produced by the mercuric chlorid, however given, that the animal may become anuric not from the impaired kidney function but because the available water of the body is deficient.

---

[5] Fantus, Bernard: Jour. Lab. and Clin. Med., 1916, 1, 3; 1917, 2, 3.

[6] Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Ed. 2, Berlin and Vienna, 1911, p. 463.

A 54 per cent. glucose solution was then given intravenously at the uniform rate of 5.4 gm. of glucose per kilogram per hour for three hours, but only 10 c.c. of albuminous fluid containing a trace of glucose were obtained from the bladder. A normal animal weighing 10 kg. and receiving the same treatment will, as a rule, pass about 1,000 c.c. of urine. The dog continued to be anuric, and died on the seventh day.

The next experiment was undertaken to ascertain whether any protection could be afforded an animal if treated by copious diuresis immediately following the smallest uniformly fatal dose, that is, 4 mg. of mercuric chlorid per kilogram of body weight, the animal weighing 14.77 kg. This dose of 59 c.c. of a 1 : 1,000 solution was given intravenously at a uniform rate over a period of one hour, and immediately followed by the injection of 19.49 per cent. glucose solution at the rate of 5.4 gm. per kilogram per hour for three hours. During this time, the 14.77 kg. dog received 3,101 c.c. of fluid (1,251 c.c. of the glucose solution with one machine, and 1,850 c.c. of water with the second machine), and passed 2,805 c.c. of urine.[7] The dog continued to excrete urine, but died at the end of the third day. (The diuretic treatment itself does not seriously affect normal dogs).

The same experiment was repeated, with the difference that sufficient sodium chlorid, potassium chlorid and calcium chlorid were added to the glucose solution to give it the salt content of Ringer's solution, and Ringer's solution was used instead of water to preserve the water balance. During the three hours, the 14.77 kg. dog received 2,333 c.c. of fluid (1,353 c.c. of 18 per cent. glucose solution and 980 c.c. of Ringer's solution), and passed 2,125 c.c. of urine. The dog continued to excrete urine, but died in less than forty-eight hours in spite of the active kidney function.

The same experiment was repeated, except that Fischer's solution, as recommended by Weiss,[8] was used immediately following the intravenous poisoning. An 18.4 kg. dog received 30 c.c. of this solution per kilogram of body weight per hour for two hours. During this time it received 1,100 c.c., and the fluid output amounted to 1,000 c.c. of urine and 400 c.c. of liquid feces. (Fischer's solution administered intravenously in the foregoing amounts acts as a cathartic.) The dog continued to excrete urine, but died at the end of forty hours.

As these experiments proved entirely negative, so far as beneficial results were concerned, it was deemed futile to continue along this line. Within the past few years, however, a combination of sodium phosphite and sodium acetate has received some attention as a therapeutic agent. Carter[9] reported the successful treatment of many cases of mercuric chlorid poisoning by the oral administration of these salts, and explained their apparently beneficial results on the theory that the sodium phosphite reduced the mercuric chlorid in the tissues to the much less toxic mercurous chlorid (calomel), a reaction that is known to take place rapidly in vitro. Carter's reports[10] are very inadequate, consisting for the most part of mere statements of the number of cases successfully and unsuccessfully treated. But Fantus,[5] working with a large number of rabbits, found these salts of distinct therapeutic value when administered by mouth.

The intravenous injection of sodium phosphite would be the ideal way of bringing this salt into general contact with mercuric chlorid poisoned tissues. A series of experiments was therefore undertaken to determine whether any protection could be afforded in this manner. Carter recommended the use of these salts in the proportion of 10 gm. of the sodium phosphite to 6.6 gm. of the sodium acetate and held that, if the amount of mercuric chlorid taken is known, from five to ten times that amount of the sodium phosphite should be given.

Sodium acetate is a nontoxic substance in everyday use. Sodium phosphite was found by experiment to be nontoxic when administered intravenously in large doses. One dog received intravenously 57 and a second 200 mg. per kilogram of this salt with no apparent toxic symptoms.

One experiment was performed to test the detoxicating power of sodium phosphite in vitro. One gm. of sodium phosphite and 6.6 gm. of sodium acetate were added to 100 c.c. of a 1 : 1,000 solution of mercuric chlorid. The proportion of sodium phosphite to mercuric chlorid was thus 10 parts by weight of the former to 1 of the latter. A white precipitate of calomel soon formed. Of the filtrate, 10 c.c. per kilogram of body weight were given to a dog intravenously with no apparent toxic effects.

Two experiments were performed to determine whether the phosphite solution, when given intravenously immediately following the injection of mercuric chlorid, afforded any protection. The first dog, weighing 14.56 kg., received 58.24 c.c. (4 mg. per kilogram of a 1 : 1,000 mercuric chlorid solution) over a period of fifteen minutes, which injection was followed immediately by 116.48 c.c. of a solution containing 1 per cent. sodium phosphite and 0.66 per cent. sodium acetate over a period of thirty minutes. Thus twenty times as much sodium phosphite as mercuric chlorid was given. The urine, which amounted to 1,785 c.c. in the first twenty-four hours, contained sodium phosphite. The dog continued to excrete urine, but died in five days with typical lesions. In this case the minimum uniformly lethal dose was given in fifteen minutes instead of the standard thirty minutes, in order not to delay the beginning of the treatment. Our experience would not indicate that variations in the time of injection between fifteen minutes and one hour affect the results.

---

[7] This diuresis in the case of a dog weighing 14.77 kg. corresponds to 1,900 c.c. per 10 kg. of body weight. It is stated in the first paragraph but one preceding that a normal 10 kg. dog receiving the same intravenous and glucose water treatment will, as a rule, pass only about 1,000 c.c. of urine. This dog passed nearly twice as much. The extra diuresis cannot be attributed to the extra water given with the mercuric chlorid, since this was only 40 c.c. per 10 kg. It is due rather to the diuretic effect of the mercury salt itself. The mercuric chlorid, unless given in too large doses, acts as a powerful diuretic.

[8] Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, The Journal A. M. A., June 2, 1917, p. 1618.

[9] Carter, T. A.: Chicago Med. Recorder, 1914, 36, 444.

[10] Carter, T. A.: Critic and Guide, 1915, p. 266.

The second dog, weighing 12.16 kg., received the same dose of mercuric chlorid per kilogram, followed by enough of the phosphite-acetate solution described above to introduce 35 parts by weight of the sodium phosphite to 1 of mercuric chlorid given. This was injected slowly over a period of three hours. The dog continued to excrete urine, but died at the end of four days.

Hall[11] has suggested the use of potassium iodid and quinin hydrochlorid as an antidote for mercuric chlorid poisoning, giving the formula in the accompanying tabulation:

HALL'S ANTIDOTE FOR MERCURIC CHLORID POISONING

	Gm.
Potassium iodid	3.00
Quinin hydrochlorid	1.60
Hydrochloric acid, dilute (10 per cent.)	2.00
Distilled water	to 100.00

Such a solution will remove all of the mercury from equal volume of a 1 per cent. mercuric chlorid solution. Barbour[12] gave intravenously to rabbits a solution similar to the foregoing in sufficient quantity to precipitate all of the mercury from one-half to one hour after having given intravenously from 2.5 to 5 mg. of mercuric chlorid per kilogram; but the animals died sooner than the controls, so that it would appear from Barbour's work that Hall's solution is no more effective in counteracting the effects of mercuric chlorid that has entered the general circulation than those which we have tested.

Another series of animal experiments was undertaken to determine whether the best known forms of alimentary medication afforded any protection following the intravenous poisoning with mercuric chlorid.

The first dog, weighing 8.64 kg., received 4 mg. of mercuric chlorid per kilogram of body weight as before. Carter's[10] antidote was then given my mouth in the proportions and amounts recommended by him, that is, 10 parts of sodium phosphite to 6.6 parts of sodium acetate, and 10 times as much sodium phosphite as mercuric chlorid given. Three such doses were given per day. This dog continued to excrete urine, but died in four days. A second dog, weighing 19.55 kg., was treated in the same way with similar results, continuing to pass urine and living four days. Toward the end of these experiments, both animals vomited parts of the phosphite solution, and to eliminate this possible source of error two rabbits were poisoned and given the same treatment. The first lived seven, and the second, six days. Neither became anuric.

Two dogs poisoned as before were given by mouth the sodium hypophosphite-hydrogen peroxid mixture recommended by Fantus.[5] Three doses were given per day, each dose consisting of 40 mg. of sodium hypophosphite and 2 c.c. hydrogen peroxid per kilogram of body weight. The first dog lived five days, and the second, six days. Both continued to excrete urine.

Two dogs were poisoned as before and given the Lambert and Patterson[13] treatment, with the sweating necessarily omitted. The reader is referred to their article for the details of this treatment. The essential points are repeated gastric and colonic lavage, diuretic potassium bitartrate sugar solutions by mouth, a continuous rectal drip of 0.8 sodium acetate solution, daily sweats, and albumin in the form of milk. One dog lived three, and the other, two days.

SUMMARY

The minimum uniformly lethal intravenous dose of mercuric chlorid in dogs was found to be 4 mg. per kilogram of body weight (1:1,000 solution injected uniformly during from fifteen to sixty minutes). It would appear that this dose has not heretofore been sharply defined; but it corresponds approximately to the smallest doses of mercuric chlorid which, according to standard textbooks, have been known to cause death in man. The dose of 4 mg. per kilogram uniformly failed to cause anuria. A larger dose, namely, 5 mg. per kilogram, was found necessary to produce the latter result.

In cases of anuria from experimental mercuric chlorid poisoning, all attempts to reestablish the flow of urine by intravenous administrations of strongly diuretic solutions failed.

In animals that had received the minimum uniformly lethal dose of mercuric chlorid, but in which the kidneys were still capable of functioning actively, no success was attained in efforts to save the dogs by copious systemic lavage by means of intravenous injections of highly diuretic sugar or salt and alkali solutions. In fact, it usually shortened life. Lambert and Patterson[13] used diuretics both orally and by rectum, supplemented by diaphoretic measures in the treatment of clinical cases of mercuric chlorid poisoning. They attached considerable importance to the diuresis and sweating. However, they combined with these the administration of albumin in the form of milk, frequent washings of the stomach, and colonic flushing, so that it would be impossible to judge from their data how much, if at all, the sweating and diuresis in themselves contributed to the success of their treatments. Moreover, none of the ten cases reported became anuric, which, in the light of the present experiments, would indicate that the quantity of mercuric chlorid that actually gained access to the tissues at large never in their cases greatly exceeded the minimum surely fatal dose, and might never have equaled it. The symptoms were those of a relatively mild grade of tissue poisoning, compatible with recovery without accelerated diuresis. It would appear as though the success of the treatment may have been due chiefly to the factors of delayed absorption and hastened elimination from the alimentary tract rather than the diuresis and sweating, although on the basis of the present experiments on dogs, no conclusion could be drawn as to the value of the sweating. Similar comments might be made concerning the method of treatment described by Weiss.[14]

---

[11] Hall, W. A.: Jour. Am. Pharm. Assn., 1915, 4, 183.

[12] Barbour, H. G.: Mercuric Chlorid Poisoning in Animals Treated Unsuccessfully by Parenteral Administration of Hall's New Antidote, The Journal A. M. A., Feb. 27, 1915, p. 736.

[13] Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

[14] Solutions which are diuretic are not infrequently cathartic as well. This applies to sodium or potassium acetate, lactose, and to a very marked degree to the sodium chlorid-sodium carbonate solutions used by Weiss, even when the latter are given intravenously. The chief channel of elimination of mercury, as with the salts of heavy metals in general, is by way of the bowel, and a priori reasoning would lead to the conclusion that relatively little of these substances can be made to pass out by way of the urine under any circumstances.

Dogs that had received by vein the minimum uniformly lethal doses of mercuric chlorid died in spite of intravenous injections of sodium acetate-sodium phosphite solutions, even when the latter were given immediately after the poison had been given, and when the weights of sodium phosphite were from twenty to thirty-five times as great as the weights of the mercuric chlorid administered. The sodium phosphite-sodium acetate therapy has proved of no value in counteracting or preventing the deleterious effects of intravenously administered mercuric chlorid. Dogs and rabbits that had received by vein the minimum uniformly lethal dose of mercuric chlorid died in spite of the use of the best known forms of alimentary medication.

CONCLUSIONS

1. There is no sound experimental basis for the belief that the promotion of free diuresis contributes materially to the chances of recovery in mercuric chlorid poisoning, and this phase of treatment should not be permitted to obscure that which is more essential.

2. Combined treatments which involve sweating, diuresis and increased elimination from the bowel probably owe their value chiefly to the latter effort.

3. It would appear in the light of the present study that when 4 mg. or more of mercuric chlorid per kilogram of body weight has entered the tissues at large, death regularly occurs, and that we have no adequate grounds for believing that death is preventable by any known form of treatment. Whereas, subsequent studies may add to our knowledge, it would appear that persons who have recovered from mercuric chlorid poisoning owe their lives to the fact that a lethal-dose has never gained access to the extraportal circulation. Practical therapeutic efforts should be directed frankly toward the accomplishment of two things: (1) Mechanical removal of the poison from the lumen of the alimentary tract. (2) Antidoting the poison before it leaves the portal circuit, that is, particularly before absorption.[15]

---

[15] Before the completion of the work described above a patient who had entered the Presbyterian Hospital on account of mercuric chlorid poisoning was treated at the request of Dr. Frank Billings, by means of intravenous injections of glucose and of hypertonic salt and alkali solutions (1.4 per cent. sodium chlorid in 0.3 per cent. sodium carbonate-Fischer), and also by renal decapsulation. The negative results of treatment paralleled those observed in animals. None of the methods restored a flow of urine, and the patient died on the seventh day.

Milk.—The commission appointed by the food administrator
to study the cost of milk delivered in Chicago, and to fix
the price to be paid to producers has made its report on a
basis that makes the price of milk delivered to consumers
at 12 cents a quart. By the arrangement of the health com-
missioner, a number of depots have been established where
milk can be purchased without delivery at 10 cents a quart.
After taking testimony at numerous hearings extending over
several weeks, the commission fixed the price to be paid to
producers. From October 1 to November 1, the milk pro-
ducers arbitrarily fixed the price to the distributors at $3.42
and milk delivered retailed at 14 cents a quart. From Novem-
ber 1 to February, the price to distributors was $3.22. The
price as fixed by the commission allowed the contention of
the distributors as to the cost of delivering the milk and the
reduction fell entirely on the producers. As a protest against
being obliged to shoulder all the reduction, the producers in
many instances refused to ship their milk and Chicago has
been on a short supply for a week or more. A new commission
is to be appointed by the local food administrator to consider
the question of waste in delivery of milk, on account of the
fact that many distributors cover the same territory.

SYSTEMATIC THERAPEUTIC EXERCISES IN THE MANAGEMENT OF THE PARALYSES IN HEMIPLEGIA

ROBERT ODEN

WASHINGTON, D. C.

In considering the treatment of cerebral hemiplegia, Thomas[1] states that "the paralyzed limbs should be rubbed, moved passively," and "when voluntary power begins to return, this should be encouraged by practice, and the patient should have regular gymnastic exercises." Church[2] says that "as soon as the apoplectic coma has passed away, gentle massage of the paralyzed side and exercise of all the paralyzed muscles by mild faradism should be instituted. . . As soon as there is any reappearance of voluntary motion the patient should be encouraged to exercise it. These measures are usually postponed to the end of ten days or a fortnight in fear that, by instituting them early, the brain lesion may in some way be increased." Then he suggests that the fear of greate injury is without reason, if the measures are prop carried out. These two statements from stand medical works illustrate the mode of treatment t has been advocated, and perhaps used, in most cou tries. Further statements would lead to the belie that some of the treatment is to be directed to th prevention of the deformity of contracture, and tha the method of treatment does not insure a bettermen in all cases. It has, in fact, been stated and is commonly assumed that in some cases there may be a persistent paralysis, and that if there is no return o voluntary movement within a period of two years there is little or no chance that there will be improvement.

Much more hope is held out for the patient, anc much greater detail of methods of treatment is given by those who have developed and followed the Swedisl system of therapeutic exercises. When these exercises are given in a proper, including systematic, mannei the results are so encouraging that it seems probabl they are not so well known as they should be, and tha the advantages of gymnastics (with massage) are no fully recognized in the treatment of hemiplegic cases. It is because of these two considerations that appears well to describe some of the methods of dealing with hemiplegics, as taught and practiced by the leading masseurs and recommended by the foremost physicians in Sweden, and to give some indications of their value by the citation of some experimental work with artificially produced hemiplegia in monkeys, and of some brief case records.

KINDS AND USES OF MOVEMENTS

In order to make matters plain, it will be well to define the terms that are used and to describe the methods named. Movements may be divided into the two general classes of "active" and "passive." The active movements are those that are brought about by the volition or the effort of the patient. These movements are called "free" when they are made without any resistance or without the performance of work beyond that of moving the part; but when the movements are resisted by an operator or masseur, they are called "duplicated" or "resistive." The passive movements, to which the term "massage" is more often applied in English speaking countries, are applied by the masseur or by the physician to the patient, the latter remaining inert, or in as relaxed a condition as is possible. These passive movements may be applied on the part (the muscles, for example) or with the part (by moving it). There are four different kinds of passive movements applied on or to the part: effleurage, petrissage, friction and tapotement.

---

[1] Osler and McCrea: Modern Medicine, 1915, 5, 469.

[2] Church and Peterson: Nervous and Mental Diseases, 1914, p. 223

[3] Attention has recently been called to this matter by Franz, S. I.; Scheetz, Mildred E., and Wilson, Anita A.: The Possibility of Recovery of Motor Function in Long Standing Hemiplegia, The Journal A. M. A., Dec. 18, 1915, p. 2150; also by Elliott, G. R., and Boorstein, S. W.: Orthopedic Treatment in Hemiplegics of Long Standing, ibid., July 1, 1916, p. 31.

Effleurage, or stroking, is performed by laying the palmar surface of the hand, or the thumb or the fingers, on the part that is to be treated, and making strokes centripetally with an amount of pressure that can be determined only by the amount of muscular contraction of the part or by venous stasis, or by any other condition that is to be dealt with. This process is believed to stimulate the venous and lymphatic flow, and to bring about relaxation of contracted muscles. In petrissage, the tip of the thumb, or the tips of the first three fingers, are employed to make circular and loosening movements. This kind of passive movement is used to loosen adhesions, to disperse infiltrations, and to promote the circulation in the part that is manipulated. When applied in a light way, it is thought that this procedure stimulates the part. Friction consists in grasping a muscle, for example, the biceps, and thoroughly kneading it between the fingers. This gives a great mechanical stimulus to the muscle, and stimulates the part similar to the process of petrissage; but a much larger area is taken care of, and the stimulation is more intense. A special form of friction is given to nerve trunks, by drawing the fingers sharply across the long axis of the nerve and at right angles to it. It has been demonstrated that this nerve friction can at times cause contractions of muscles, which will not react to electrical stimulation, and the application of the stimulus to the nerve, rather than to the muscle, brings about a greater contraction of the muscle when one is obtained. Apart from the immediate motor effects, this nerve stimulation also starts afferent processes, perhaps somewhat similar to those that are produced by muscular contraction, and in this way by reflex conduction the motor apparatus is also stimulated indirectly. In tapotement, the part that is to be treated is struck sharply again and again. The striking is usually done with the ulnar surface of both hands, the blows being made in quick succession, the motion coming from the carpal joints as in ordinary percussion, and the whole hand being held in slight ulnar flexion. The effect of tapotement is chiefly that of stimulating the muscles mechanically. It increases their irritability, and when slight nerve impulses come to them they are thrown into marked states of contraction. Nerve friction after tapotement of the muscles may bring about a clonic kind of muscular activity, which persists during the time the nerve is being stimulated.

Each of these types of passive movements has its use in the treatment of the paralyzed state. Effleurage is chiefly, but not exclusively, valuable in loosening the tight contraction of the muscles in the condition known as contracture, and in keeping certain muscles, such as the flexors, from getting into a state of contracture. The value of petrissage has already been mentioned. The use of friction is to increase the nutrition of muscles which, on account of disuse, are apt to atrophy, and to prevent or to overcome the atrophic tendency. When applied to the nerve it tends to increase its conductivity and to increase the mechanical irritability of the muscle. Tapotement also increases the irritability of the muscles, so that in cases in which only slight nerve impulses are being received they may have more motor effect than under ordinary circumstances. Friction in newly produced cases of paralysis should be applied to the extensor muscles of the arm and to those muscles of the leg which in old cases show the most lack of power or control, such as the peroneus. In those cases in which there are residual paralytic symptoms the friction should be directed against those muscles which cannot be moved, or which are not in a state of contracture, and those muscles, control of which is most important for the individual to acquire, for example, the extensors of the forearm, the peroneus, etc. In no case should friction be applied to the muscles that are in a state of contracture, and this, it should be remarked, is not distinctly specified in many neurologic textbooks that deal with the treatment of paralytic cases. In fact, if the statements quoted at the beginning of this article are read literally, they seem to indicate that massage should be used for *all* of the muscles of the paralyzed segments.[4]

When, however, we consider in detail the paralyses of apoplectic origin, we find that certain muscles are more involved than others; or, to put the matter in strict form, we may say that certain muscles are apt to get into a state of tonic or forceful contraction, and that others remain in a state of flaccid paralysis. Thus, in the upper extremity, the muscles which usually cannot be moved and which are flaccid are the lateral retractors of the arm, the supinators and extensors of the forearm, and the extensors of the fingers. In the lower extremity, the muscles chiefly affected are the adductors of the thigh, the flexors of the leg, and the dorsiflexors of the foot. In the upper extremity, contractures are found; some come early and some only after a considerable period according to the site of the lesion (cortical or subcortical). The contractures of the arm produce an adduction of the arm on the body, flexion at the elbow, wrist and fingers, and some pronation of the hand. In the leg, the knee is usually extended, the angle is dorsiflexed, and these two conditions with the accompanying inability to overcome them with the appropriate muscles bring about the outward swinging and dragging of the foot that characterizes the hemiplegic gait.

While these are the usual conditions to be found in hemiplegia, each case should be dealt with individually, for there are considerable differences in degree and distribution of the paralyzed muscles. At the same time, each muscle or muscle group should be considered in relation to its condition, for example, its tonicity. When these points are worked out, it will be simple to determine which muscles should be stimulated and which should have the treatment to bring about a relaxation. Thus, when there is a contraction, the muscles should be treated by effleurage of a very light form, and the corresponding antagonists should be exercised by friction and tapotement. The nerves to the relaxed muscles also should be stimulated by friction; but it must be kept in mind that too strong stim-of this he is deprived of the much needed effort to help himself; and since he has been petted so long he does not care to exert himself to the slightest degree, and he can be made to do so only by insistence that he help. It is also likely that if it were possible to give the patient more frequent treatments, some of the results would have been bettered, for by having only three a week there is time for some of the good effects to pass away between the individual treatments, and the cumulative effects are not so readily obtained.

---

[4] Mention will be made of this matter in one of the case reports.

COMMENT

These five cases illustrate very well that improvement, and in many cases a considerable amount of improvement, can be brought about in the condition of a hemiplegic if appropriate exercises are given to the involved muscles. They also show that "general" massage, as indicated in Cases 1, 2, 4 and 5, has not brought about such improvement, although it is reasonable to suppose that the promptness and the extent of this form of treatment could have demonstrated its efficacy if any existed. It should be remembered that the amount of special treatment that I gave these patients was much less than the amount of "general" massage that had been given to them. It may be remarked that the amount of improvement in four of the cases did not go to the extent of a complete recovery, and that Case 3 should not be considered in connection with the other four. With both of these remarks I am willing to agree; but with respect to the lack of a complete recovery, it should be borne in mind that in all cases the treatments did not extend over a sufficient time to show the full possibilities. Although small in amount, they have shown that much more can be done than with "general" massage, which is usually advocated, and they show that we have not reached the limit of possibility. Patient 1, who had been paralyzed for nine months, was almost completely "cured" by special treatments for three and one half months, although during the nine months he had not improved under "general" massage. Patient 2 improved under three months' treatment, although he had not improved under five years' "general" massage. Patient 4 improved in two months, although he had not improved in the preceding two months' treatment with "general" massage, and has deteriorated in [illegible] general massage has been [illegible] the equivalent of [illegible] although in two [illegible] had been getting [illegible] being exaggerated [illegible] increasing. In [illegible] or his relatives, [illegible] thinks this [illegible] patient is either given [illegible] a cheaper operator, [illegible] massage; and since the [illegible] not made, there is a [illegible] improvement. This [illegible] found, and is the same [illegible] kinds of chronic [illegible] that the treatment [illegible] bring about a com[illegible] the paralysis for [illegible] if an athlete ceases [illegible] most frequently [illegible] his former level of [illegible] for a considerable [illegible] it is well recognized [illegible]
that after a certain age the adaptability
and this lowering of the individual's capacity
adjustments is probably both nervous and
The results that have been obtained do indic
a considerable amount of voluntary control
the treatment of the paralyzed muscles a
nerves. It should also be mentioned that t
tracture is overcome; and although this is a
more of cosmetic interest, it is not unimpor
the deformity be improved.

It might also be remarked that we do not kn
can only estimate from the combined clinical
toms, how extensive the cerebral lesions in the
were, or what special parts of the brain hav
destroyed, and that only the examination of the
will show the extent and the limits of the d
tions. Although this criticism has actually
made, it appears to be forgotten that competent
cians, and especially neurologists, can estimat
closely, and it is possible to predict within a fair
of certainty that in the cerebral paralyses eit
cortical motor area or the motor fibers hav
destroyed. The durations of the paralysis in C
2 and 5 previous to the treatments are indicatio
the conditions were of the nature of residual d
and that if treatments had not been institut
motor deficiencies would have persisted. A
therefore, as this criticism is concerned, I nee
say that it is unjust with respect to probabilit
furthermore, from the patient's standpoint it
little difference about the nature of the lesion
apparently permanent defect can be overcome, a
imperfection give place to a more normal stat
may be necessary to know the exact locatio
degree, and the extent of the lesions if we w
translate the results into terms of a hypothesis
this can be done best by a suitable series of e
ments on animals, or only after the accumulati
numerous cases of recovered hemiplegia. The e
ments on animals have been carried out, an
results of the series will be briefly cited[5]:

REPORT OF EXPERIMENTS

EXPERIMENT 1.—A monkey had the left motor
cauterized with an electric thermocautery, which prod
right hemiplegia. The left arm was strapped to the b
that it could not be used and so that the animal wo
compelled to use the right. At the same time the ex
muscles of the right arm and the arm nerves were stim
by friction. The animal was also held by its strap a
right hand was struck by another piece of strap. This
the animal attempt to escape the irritation, and althou
first the right arm could not be moved away from the
tating stimulus, in a few days the monkey was able to
away the hand and also to grasp, but with little powe
irritating strap. At the end of two weeks the animal
use its arm and leg very well, and three weeks afte
cortical destruction it could pick small pieces of food
the floor, it could climb and walk, and showed in the
lyzed segments no obvious incoordination. A week aft
had recovered the use of the right arm and leg the right
cortex was destroyed in the same manner as the left.
produced a complete left hemiplegia. No treatment was
to the animal for this paralysis; it was permitted to rec
by itself if it could, and to date (at the end of six mon
the paralysis of the arm has persisted, although there is
siderable recovery in the leg segment.

---

[5] The results of these experiments will be reported in greater
in a forthcoming paper with S. I. Franz. The monkeys used in
experiments were supplied to Dr. Franz through a grant to him,
acknowledgment of the assistance of the Carnegie Institution in
regard is here made.

Experiment 2.—A monkey had the left motor cortex cauterized, June 2, producing a complete right hemiplegia. The animal was given "general" massage to the paralyzed limbs, and all the muscles were thoroughly kneaded daily. This treatment was carried out for twenty-six days, and at the end of that time the animal used the left arm exclusively. The right hand showed marked wrist drop; there was some possibility of flexion and extension, but there was little strength. The right leg also showed little improvement. There was a dragging of the foot when the animal walked or crawled. Four weeks after the first operation, the right motor cortex was cauterized. The right arm was also bound to the body of the animal, and the nerves and muscles of the left arm and leg were given the special treatments. This was continued about four weeks, at the end of which time the movements on the left could not be said to differ in any respect from those of a normal animal. Improvement on the right has continued, and that side is almost well; but the left hand is used more frequently than the right in taking food, etc.

Experiment 3.—The left motor cortex of a monkey was cauterized, June 2, resulting in a right hemiplegia. The left arm was strapped to the body of the monkey and its movements were prevented, but no other kind of treatment was given. At the end of four weeks, the amount of recovery was [illegible]t. Some movement of the right arm and leg was possible, [illegible] there was marked incoordination and incompetence. [illegible] the four weeks of *laissez faire* management, the muscles and nerves of the right side were stimulated and the treatments continued for four weeks. At the end of that time the right arm and leg had regained their normal power and accuracy. After the recovery from the right hemiplegia, a left hemiplegia was produced in a similar manner. Following this operation the left side was given "general" massage without special attention to the individual muscles and nerves. The animal continued to use its right arm almost exclusively, although after a few months both were used, and they can be used together when necessary. The animal now climbs and jumps, but its movements, especially of the left hand and arm, are awkward. It holds its food awkwardly, and does not carry it full way to the mouth, but the head is inclined to meet the food as it is brought upward by the hand, usually the right.

Experiment 4.—A monkey had the left precentral area cauterized, July 25. A typical right hemiplegia resulted. The movements of the left arm were restricted by tight bandaging, and the animal was given special treatments such as have been described. The recovery of the right side was rapid, and after three weeks it was not possible to detect any difference in motor capacity for the two sides of the body. The animal was shipped North, but developed pneumonia and died in three days. The brain showed a very extensive lesion involving the left motor cortex.

COMMENT

It should be pointed out that the results which have been described differ in at least one respect from those of investigators who have previously produced experimental hemiplegia in monkeys. This is the time of the recovery. Previous investigators have shown that if a monkey is paralyzed by the destruction of the motor cortex, recovery takes place "spontaneously." But the period for the recovery is one of months, and is well illustrated by the results of the second part of Experiment 1, in which at the end of six months the monkey has not fully recovered the use of the left hand and leg. The present work shows that the period of recovery may be much shortened and that the full return of voluntary control may take place in a few weeks, if suitable stimulating exercises are given.

The results of the experiments on the artificially paralyzed monkeys may be thus summarized: They show that (1) very little improvement takes place if the animals are given no treatment; (2) when "general" massage is used there may be some improvement, perhaps more than without treatment, but not very extensive, and (3) when the therapeutic attack is directed to specific muscles and nerves, the recovery is rapid and complete. These results are almost directly in accord with those which have been obtained with the human cases of hemiplegia which have been cited; but the rapidity and completeness of the improvement in the animals may be the result of different inherent qualities of the nervous system. It has already been pointed out that there is an almost complete recovery of the monkey after the destruction of the motor area or of the pyramidal fibers, but this recovery is very slow if the animal does not receive treatment In the human cases, on the other hand, it has been believed that a paralysis which is not appropriately treated is not followed by recovery. Perhaps it would be more accurate to say that at present we are ignorant of the possibility of spontaneous recovery in human paralytics. One reason may be that the occurrence of the contracture which is an almost constant phenomenon may help to prevent or to mask the spontaneous recovery in man, and, secondly, the correlation of the anatomic data with the clinical symptoms has frequently been made without a sufficiently exact histologic knowledge of the destroyed area. If we are willing to conclude that recovery of voluntary motor function in man may take place after the destruction of the precentral cortex or of the pyramidal fibers, as is indicated in the records of the present series of cases, as well as by those reported by Franz, Scheetz and Wilson, and by Elliott and Boorstein, there appears to be no cogent theoretical reason why we must assume that some spontaneous recovery does not take place. It may be that there is no difference in kind but only a difference in degree between man and the monkey and other animals in this respect, and that our assumptions regarding the necessity for continued paralysis are not well founded.

From the work reported, I believe that every case of cerebral paralysis should be given the special treatments that have been found successful, and that we should give to every patient the fullest opportunity for betterment. It is too soon to predict with certainty how much improvement will result in any individual case; but the success noted in the cases that have been cited here and in the other cases that have been reported warrants the belief that the systematic effort of the physician should be directed to the alleviation of the distressing condition, which in the past has all too frequently been left for spontaneous recovery. It may be that further study will show that some patients will progress to a certain point, others may go to a point at which there is almost complete return of function, and others may show no obvious benefit. Further work is necessary for the differentiation of cases; but the facts at hand hold hope that many, probably most, perhaps all, cases of cerebral paralysis may be relieved; and even though the improvement may not extend to the ability to perform all kinds of finely coordinated movements, the prevention or the cure of the deformity of contracture, and the therapeutic production of even gross movements, are ends not to be despised, since they make the patient happier and less helpless.

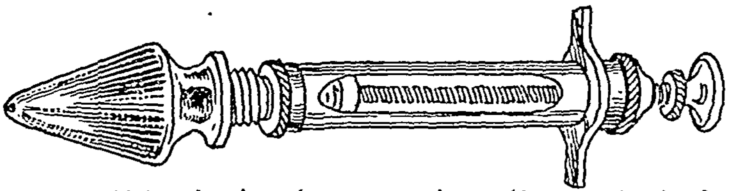
THE TECHNIC FOR SEALING MEDICATION IN THE URETHRAL CANAL

EDGAR G. BALLENGER, M.D.
AND
OMAR F. ELDER, M.D.
ATLANTA, GA.

The advantages of prolonged applications of suitable remedies to inflamed mucous surfaces are well known. As a method of securing these advantages as soon as the treatment of a new case of urethritis is begun, and as a prophylactic measure, we have sealed medicament in the urethral canal with collodion. So satisfactory have been our results in the past twelve years that we desire to describe briefly the technic employed and the indications for its use.

TECHNIC

The patient should be placed in a reclining posture. The penis should be washed and dried, then surrounded with a sterile towel. A syringe holding 25 minims is used to inject this amount of medicament into the urethra. A larger amount does not seem to give any better results and is more likely not to be held in the urethra for the necessary time. Next, the canal is compressed with the left hand while the meatus is dried. Collodion is then applied with a camel's hair brush over the meatus and the glans penis for one-fourth inch around the meatus. The compression of the urethra should continue for about five minutes until the collodion is thoroughly dry and feels hard to the touch. It is important to use plain collodion, U. S. P., 1910, which contains no castor oil nor balsams and which feels hard when it dries. No cotton should be placed over the meatus, as it will not hold well and is unnecessary. When the collodion is thoroughly dried, the urethra should be released and a condom containing a small amount of absorbent cotton should be placed on the penis to protect the patient's clothing, in case the collodion should break and allow the escape of the medicament sealed in the urethra.


A standard hypodermic syringe connected to a blunt metal point for injecting the medicament into the urethra.

The patient, who should empty his bladder just before the treatment is applied, should be told not to drink anything for a few hours and to allow the drug to stay in the urethra four or five hours, if he is not compelled to urinate before this time has elapsed. When he wishes to void, the anterior part of the urethra should be compressed and pressure applied over the collodion, causing it to break at some point that affords a line of cleavage by which the collodion may then be pulled off.

After allowing the escape of the medicament, the patient should drink freely of water for the remainder of the day, so as to flush the urethra with bland, unirritating urine. The following morning very little water or other liquids should be taken, in order to prevent a distended bladder from allowing the medicament to stay in the urethra for the full time.

The treatments may be repeated once a day for five days if conditions are favorable. If the discharge continues or increases, or if organisms can be found in the secretion on the third or fourth day, it may be taken to mean that the germs have extended to a point not reached by the medicament and that this method should be replaced by the usual treatment.

INDICATIONS

The chief indications for this treatment of sealing the medicament in the urethra are (1) fresh infections and (2) prophylaxis.

Patients should be encouraged to report and have a microscopic examination made as soon as the discharge appears. If gonococci are found, the treatment should be started at once. The best results come when we begin on the first day. A very large percentage of such patients can be cured within five days. The prognosis becomes less favorable as the duration of the infection lengthens.

Sexual intercourse during the period of incubation reduces the chance for a prompt cure about 50 per cent. We cannot hope for a good result when injections and instrumentation have carried the infection deeper than the part retaining the medicament. Nor can we hope for prompt results if there is much swelling of the meatus or foreskin, or if the cases along the urethra are palpable. Other infections than gonococcic respond equally well to treatment if they are recently acquired, although they are more likely to be deeply seated and are, perhaps, recrudescences brought on by the sexual intercourse at the time at which the patient thought the trouble was contracted. No special advantages are claimed for this treatment except in fresh infections. The surgeon, however, should practice the "sealing-in" process on patients with chronic disorders until he has acquired the knack of carrying out a satisfactory technic.

Our experience with this treatment as a prophylactic measure applied within the first forty-eight hours after exposure has been most satisfactory. We have not yet seen a patient develop gonorrhea who had it employed within this time. In the Army it should have a wide field of usefulness, as it can be applied at a later time than the remedies now in use. Only one treatment is required for prophylaxis.

This method has the advantage of medicating the anterior urethra to the meatus, whereas, when clamps are employed to retain medication in the urethra, the medicament does not reach the urethra anterior to the clamps, and the infection continues to be active.

The solution we usually employ is argyrol, 5 per cent. Stronger solutions are unnecessary.

SUMMARY

Our twelve years of experience with this method of treating early urethral infections leads us to assert that it is more effective than the conventional methods, also safer, for when we fail to obtain a prompt cure, no harm is done. In fact, the disease seems to run a milder course when the treatment is started by sealing the medicament in the urethra. The urethritis is not intensified, nor are strictures ever caused by the treatment.

We repeat that as a prophylactic measure we have never seen it fail when a treatment was given within the first two days of the infection.

THE CAUSE OF MUSCULAR ATROPHY FOLLOWING NERVE SECTION

H. C. STEVENS, M.D.
CHICAGO

The nervous system is held to exert a "trophic influence" over the tissues of the body. In proof of this alleged influence, it is pointed out that pathologic changes occur in many tissues as the result of injuries to nerves or to the spinal cord. The pathologic changes usually cited are herpes zoster, the Charcot joint, ulceration of the cornea in lesions of the fifth nerve, bronchopneumonia after section of the vagi, decubitus, osteoporosis, and muscular atrophy. Already evidence has accumulated to show that some of these changes are not due to a trophic influence of the nerve; for example, the formation of vesicles on the skin in herpes zoster is now definitely known to be due to inflammatory changes in the dorsal roots. Phemister has recently argued that the alleged trophic changes in Charcot's joint are due to destructive changes in the bone as a result of the loss of sensation of the joint. The ulceration of the cornea in lesions of the fifth nerve is more probably due to the absence of sensation, which abolishes the reflex cleansing of the cornea by movements of the lids. Double section of the vagi leads to a fatal bronchopneumonia. Here again the result is due, not to a trophic influence of these nerves, but to the abolition of the coughing reflex. Even in the bone, pathologic changes have been described, supposedly due to nerve lesions. Von Leyden and Grumnach[1] report osteoporosis as a consequence of nerve lesions. Their findings were not confirmed, however, by Levy-Dorn and Fürnrohr. Most striking of all the alleged examples of the trophic power of nerves is the wasting of the skeletal muscles, after destruction of the anterior horn cells or section of the motor nerves. It is with this phenomenon that my report is concerned. I shall attempt to show that the wasting of the muscles is not due to the cutting off of a supposititious influence, but rather it is due to an incessant fibrillar activity of the muscles, which begins from three to six days after nerve section and persists until the regeneration of the nerve.

This peculiar fibrillar contraction was first described by Schiff[2] in 1851, although the significance of it as the cause of muscle atrophy was not, apparently, appreciated by him. Schiff's observation was made in the course of a study of the movements of the tongue following a section of the hypoglossal nerve on one side. In his article on the paralysis of the tongue in dogs, Schiff describes the movements of the muscle fibers of the paralyzed side in these words: "It is generally assumed that a muscle which is separated from its nerve center is in a state of most complete rest and inactivity, if external stimuli accidentally act on it. This is not true. I will show, on the contrary, that very soon a long period begins in which the individual muscle bundles take on automatic, rhythmic contractions." For three to five days after the operation, the tongue is quite still. Then:

> There is a continuous rise and fall, a weaving and waving, a bubbling and seething, a flickering and glittering of the individual moving parts, whereas the unparalyzed side remains motionless (Da ist ein fortwährendes Heben und Sinken, ein Wühlen und Wogen, ein Wallen und Weben, ein Flimmer and Funkeln der einzelnen bewegten Theile, während die nicht gelähmte Seite unbewegt daliegt).

Schiff himself did not connect this striking fact with the atrophy of the muscle. Although his observation has many times been quoted, the behavior of muscle fibers after nerve section is not generally known. Recently, Langley and Kato[3] have repeated the observations of Schiff. They worked with rabbits and cats. The tibial nerve was cut on both sides. Their observations may be quoted in their own words:

> On the fourth or fifth day spontaneous twitchings begin; they increase in rate and extent for about a fortnight and continue up to seventy-one days, the longest period observed. The degree of fibrillation varies in different parts of the denervated muscle [after section of the tibial nerve]; it occurs both in white and red muscle. When well developed, the muscle presents a continuously quivering surface; this is best seen when the surface is well moistened with warm Ringer's fluid When there is but little fluid, the fibrillation appears as short depressions, occurring now here, now there, on the surface. The contractions of any one fiber have a regular rhythm. The fibrillation is seen only when the muscle is looked at from certain angles, and its distinctness varies with the angle.

RESULTS OF EXPERIMENTS

My own experiments were performed on dogs. The facial, the hypoglossus and the tibial nerves in certain animals were cut. Of these nerves, the hypoglossus is the most satisfactory for this experiment, for the reason that the fibrillation can be observed directly in the tongue, either on the dorsal surface or underneath. Where the muscle is covered with skin, it is impossible to see the movements. In order to demonstrate the fact in the gastrocnemius, it is necessary to expose the surface of the muscle by a supplementary operation. All operations were performed under ether anesthesia. A section of the nerve 1 cm. in length was removed.

In my experiments, the contractions first appear on the fourth day after the operation. Although there is some slight difference among animals, the essential phenomenon is this: About the third day, a fine, tremor-like movement is seen underneath the tip of the tongue on the operated side. When the tongue is moist, the movement is more apparent. At the end of seven days, more marked, rhythmic contractions make their appearance on the dorsal surface of the tongue at the tip. As time goes on the fibrillation spreads toward the root of the tongue. In some animals, a wormlike movement, due to the contraction of large muscle bundles, can be seen on the dorsum of the tongue near the midline. The rate of movement is from ten to twenty times a second. Although I have not been able to time the period of the contractions in any one muscle fiber, casual observation seems to indicate that the movement is incessant. From eight to twenty days after the operation, the mucous membrane on the dorsum begins to show folds and fissures, owing to a shrinkage in the volume of one-half the tongue. The loss in the substance of the tongue can be determined easily by palpation. The tip and lateral margin of the tongue become very thin and fimbriated. The coarser fascicular contractions gradually disappear and, as the process of regeneration goes on, the fine tremor diminishes, first in the region about the base of the tongue and finally at the tip. There seems to be an exact parallelism between the appearance of the contractions and the wasting of the muscle, and between the disappearance of the contractions and the return of voluntary control. As yet I have had no animal under observation for more than 101 days. One animal observed for this length of time still shows slight fibrillar movements, marked atrophy and only slight voluntary control of the paralyzed side.

---

[1] Von Leyden, E., and Grumnach, E.: Die Roentgenstrahlen im Dienste der Rückenmarkskrankheiten, Arch. f. Psychiat., 1903, **37**, 188.

[2] Schiff, Moritz: Ueber motorische Lähmung der Zunge, Arch. f. Physiol. Heilk., 1851, **10**, 587.

[3] Langley, J. N., and Kato, T.: The Physiological stigmine and Its Action on Denervated 1915, **49**, 410-431.

THEORIES OF MUSCULAR ATROPHY

In attempting an interpretation of this phenomenon, I shall find it necessary to consider the theories which have been formulated to explain the atrophy of muscle after nerve section.

1. The theory of a trophic influence of nerves on muscles is sometimes stated in such a way as to imply that there are (*a*) special trophic fibers contained within the nerve trunks of the spinal nerves; by some w[illegible]ters it is held that (*b*) there is a special kind of [illegible]pulse which regulates the nutrition of the [illegible] Aside from the general fact that muscle [illegible]ter the section of its motor nerve, there is no [illegible]ogic evidence for either the special trophic [illegible]er or the special trophic nerve impulse.

2. On the assumption of continuity of substance of nerve and muscle tissue, the section of a part of thi system might explain the atrophy which takes [illegible] another part. Against this view is the fact [illegible] histologic evidence shows that the nerve fibrils [illegible]rate and distinct from the muscle cells.

[illegible]here remains the hypothesis that muscular [illegible]trophy is due to fatigue caused by fibrillar contractions, which have been described and which will be demonstrated. That the overaction of muscle may lead to a shrinkage in volume is a well attested fact. Furthermore, it may be pointed out that the specific gravity of fatigued muscles is less than the specific gravity of normal resting muscles. Also the specific gravity of atrophied muscles is less than the specific gravity of normal resting muscles.

In the clinical literature of poliomyelitis, I have been able to find only one reference to the fibrillar and fascicular contractions of the atrophied muscle. Hoffmann[4] describes what he calls a *myokymie in certain old cases of poliomyelitis.*

> Those leg muscles which have not wholly atrophied, show a continuous *fibrillar and* fascicular twitching, which in the thigh muscles simulates a muscle surging, with a twitching of the bundles at intervals; this muscle unrest is also present in the abdominal muscles (myokymie) (*Die* [illegible]*icht geschwundenen muskeln der Beine sind* Sitz unaufhö[illegible] sich abspielender fibrillärer und fasciculärer Zuckur[illegible] den Oberschenkeln besonders das Bild [illegible]ben, dazwischen auch stärkere [illegible]skelunruhe besteht ferner[illegible] [illegible]ar

R[illegible]ould drink [illegible] [illegible]e day, so as to fl[illegible] [illegible]ritating urine. The [illegible] water or other liquids [illegible] prevent a distended bla[illegible] icament to stay in the ure[illegible]

The treatments may be [illegible] days if conditions are fa[illegible] continues or increases, or i[illegible] in the secretion on the third

---

[illegible]d [illegible]r. f. [illegible] Etiology [illegible] 21, 1916,

even definite twitching of the muscles, which later became flaccid." Similar fibrillar contractions have been observed in certain cases of central neuritis as well as in progressive muscular atrophy and amyotrophic lateral sclerosis.

25 East Washington Street.

PNEUMOCOCCUS TYPE DETERMINATION BY AVERY'S CULTURAL METHOD

EDITH A. BECKLER, S.B.
KATHERINE MARDEN, S.B.
AND
HELEN H. GILLETTE, S.B.
Bacteriologists, Massachusetts State Department of Health
BOSTON

Since the publication of Avery's[1] work on a rapid cultural method for the determination of types of pneumococcus in sputum from cases of [illegible]bar pn[illegible]umonia, the diagnostic laboratory of th[illegible] [illegible]assachusetts State Department of Health has [illegible] this method together with the method of mous[illegible] [illegible]culation.

The specimens of sputum receiv[illegible]d are from hospitals and private cases in Boston[illegible] The technic employed by us is as follows: One c.c. of sputum [illegible] washed and ground in a sterile mortar with approximately 2 c.c. of broth, 1 c.c. of the emulsion is inoculated into a mouse, and the remaining cubic centimeter is inoculated into 4 c.c. of blood glucose broth in a centrifuge tube. For the mouse test, the method outlined by Blake[2] is used. For the cultural test, Avery's method is followed. The broth cultures are examined from time to time, and when pneumococci are abundant the precipitin test is made. The time for abundant growth varies from four to eight hours.

From a comparison of forty-eight specimens examined by both methods, we obtained checks on forty-three specimens.

FINDINGS IN COMPARATIVE TESTS

	Cultural Method	Mouse Inoculation
Type I	7	8
Type II	10	12
Type III	3	5
Type IV	28	23

Five specimens that were Type IV, according to the cultural method, were distributed among Types I, II and III.

The specimens received at this laboratory are often contaminated with saliva; but it is usually impossible to get second specimens without considerable delay, and tests are made with the ones received, though they often appear unsatisfactory. The fact that we do not have any control over the taking of specimens may account for our somewhat less successful results with the cultural method than those obtained by Avery. However, our results have been sufficiently satisfactory for us to decide to use this method when mice are not obtainable, rather than to stop the work entirely.

---

1. Avery, O. T.: Determination of Types of Pneumococcus in Lobar [illegible]eumonia, The Journal A. M. A., Jan. 5, 1918, p. 17.
2. Blake, F. G.: Methods for the Determination of Pneumococcus Types, Jour. Exper. Med., 1917, **26**, 67.

Therapeutic Overdoing.—In the department of therapeutics overdoing is wrongdoing; activity here to the extent of harm is the reproach of medicine.—W. B. Konkle, M.D.

PAIN IN ACTIVE PATHOLOGIC PROCESSES IN STOMACH OR DUODENUM

GASTRIC AND DUODENAL CONTRACTIONS AS THE DIRECT CAUSE

LEO L. J. HARDT, M.S., M.D.
House Physician, Presbyterian Hospital
CHICAGO

That the question of genesis of gastric pain in pathologic conditions of the stomach and duodenum is still an open one can readily be seen from the diversified opinions of authors on the subject. The work of Ginsburg, Tumpowsky and Hamburger[1] emphasizes the gastric tension and contractions of the stomach, together with the hyperirritability of the stomach, as the most important factors in the etiology of pain. According to the older view of chemical distress in gastric ulcer, there are certain facts which are not explainable on the basis of acid irritation. The only basis for this view at present is the alkali treatment in gastric ulcer, by which the pains are immediately relieved.[2] Carlson[3] concludes that the pains of gastric and duodenal ulcers are contraction pains, either in the stomach or in the pylorus and upper part of the duodenum. In order to confirm the contraction theory, analysis was made of three distinct types of cases:

1. Carcinoma of the pylorus in which there were vigorous peristalsis and a moderate degree of pain.
2. Healed ulcer of the duodenum with cicatricial contractions, high grade obstruction, and a very pronounced hyperperistalsis.
3. Typical peptic ulcer with vigorous peristalsis.

METHOD

The patients employed for this work were carefully examined and diagnosed clinically by Dr. B. W. Sippy and his assistants. After the diagnosis was made, the procedure was similar to that of Ginsburg, Tumpowsky and Hamburger. Kymographic tracings of the stomach contraction were begun immediately after the patient had a meal, and were continued until vigorous hunger peristalsis was obtained. The patients all cooperated very intelligently. In each case the patient swallowed two tubes, one a Rehfuss and the other an ordinary tube with rubber balloon attached. By means of the Rehfuss tube, acids and alkalis could be administered, or the stomach contents could be aspirated from time to time without disturbing the patient. When the tracings were started, the patient was told to tap the key, to note the occurrence of pain. If the pains were mild, he tapped the key once; if severe he tapped it twice, and when intense he tapped it three times. The line below the tracings records the pain periods.

REPORT OF CASES

Case 1.—A boy, aged 17, gave a typical history of gastric ulcer which began about eight years previous to admission. The pain had been present at irregular intervals for about five years after the onset. But during the three years previous to admission, the pains had practically disappeared, and obstructive symptoms developed. When the patient entered the hospital, Feb. 3, 1917, he had the symptoms compatible with a high grade obstruction at the outlet of the stomach. Practically no food could pass beyond the pyloric outlet. The stomach was found to be very much enlarged, the lower border coming to a level two fingerbreadths below the umbilical line. Peristaltic waves were plainly visible through the abdominal wall. Repeated stomach analysis showed no evidence of blood, a free acidity ranging from [illegible] to 65, and a total acidity from [illegible] to [illegible]. There was no blood in the stool.

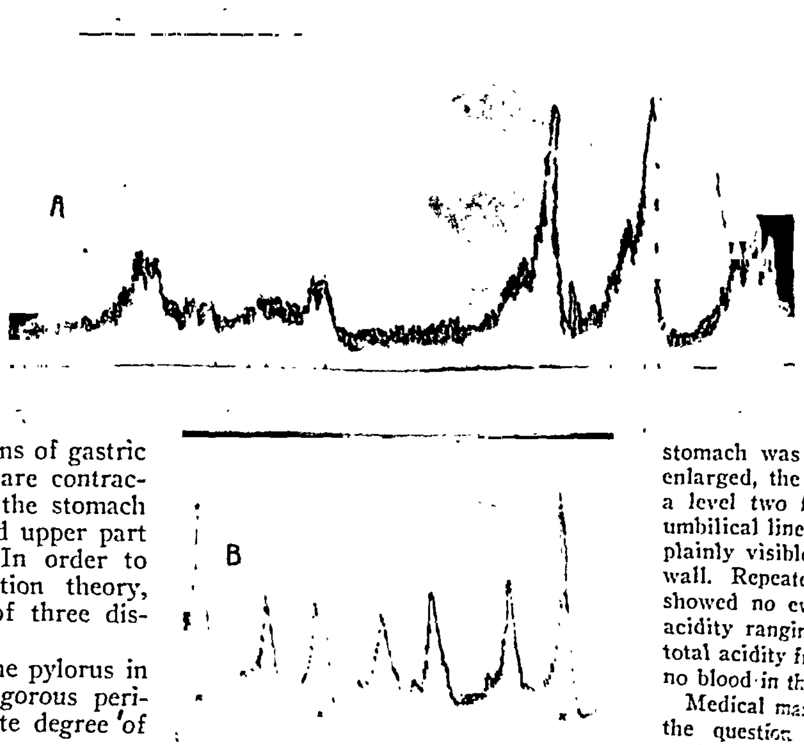


Fig. 1 (Case 1).—Record of the visible peristalsis, Feb. 20, 1917, by means of a recording signal (straight line at bottom of tracings) parallel with the recording of the contractions of the stomach by the balloon method, with the use of a chloroform manometer: *A*, two hours after the patient had eaten soup, milk, potatoes, beans, bread, tea and ice cream; *B*, after the aspiration of 700 c.c. of food material with a free acidity of 40 and a total acidity of 65. These tracings show that in healed ulcer of the duodenum or pylorus, with high grade obstruction, the contractions of the stomach are not painful.

Medical management seemed out of the question because the boy was rapidly becoming dehydrated in spite of medicinal and dietetic measures. An operation was performed and a cicatrix found at the outlet of the stomach involving a portion of the upper part of the duodenum and lower part of the pylorus. There was no evidence of an active process. Tracings (Fig. 1) were obtained previous to the operation, and vigorous peristalsis was recorded. In no instance were the peristaltic contractions associated with pain. The more [illegible] were obtained when the stomach contained large quantities of food and liquid which could not pass beyond the [illegible] The contractions of the empty stomach were also [illegible] but not painful.

Case 2.—The case described here is one which is [illegible] four others of this group. The patient, a [illegible] entered the hospital [illegible] with a [illegible] gastric ulcer of about one year's duration. [illegible] from two to four hours after eating, and [illegible] the taking of food or alkali. [illegible] severe in the afternoon [illegible] The pains [illegible] ful questioning, we find that the pains were intermittent in character and not continuous.

---

[1] Ginsburg, Harry; Tumpowsky, Isidor, and Hamburger, W. W.: Contribution to the Physiology of the Stomach: The Newer Interpretation of the Gastric Pain in Chronic Ulcer, The Journal A. M. A., Sept. 30, 1916, pp. 990-994.

[2] Sippy, B. W.: Medical Cure of Gastric and Duodenal Ulcer by an Efficient Removal of Gastric Juice Corrosion, The Journal A. M. A., May 15, 1915, pp. 1625-1630.

[3] Carlson, A. J.: Am. Jour. Physiol., 1917, 45, 81.

Two complete series of tracings were obtained which were begun immediately after the eating of a large meal and continued until intense pains were experienced. The results of the two experiments were practically identical. No pains were experienced during the first two or three hours after eating, but fractional distillations of gastric juice at this time revealed a free acidity of from 30 to 40, and a total acidity of from 50 to 60. The digestive peristalsis was plainly visible on the records at this time, but nothing to indicate the painful pylorospasm or hunger peristalsis (Fig. 2 *A*). Three hours after eating, the patient complained of severe pain (Fig. 2 *B*). Sixty c.c. of 0.3 per cent. hydrochloric acid was administered, which gave temporary relief (Fig. 2 *C*).

Five hours after ating, the patient comained of a great deal epigastric distress, which was of a burning, gnawing character, and as the records show, also intermittent. The pains were more vere toward the end a hunger contrac- . The patient was pirated, and 25 c.c. of thick mucus were withdrawn. No free acid was present, and only a trace of combined acidity. Immediately after aspiration, the pain disappeared for about ten minutes. The stomach was then washed, and the pains again disappeared. One and a half hours after it had been washed, the pains were quite severe and the stomach was again aspirated. The aspiration yielded 55 c.c. of fluid which had a free acidity of 55 and a total acidity of 70. The pains were severe at this time, but the contractions were also augmented.

During one of the painful periods a powder, containing 30 grains each of bismuth and sodium bicarbonate, was administered through the tube and gave almost instant relief. No pains were experienced for the next hour and a half, and the stomach was practically quiescent (Fig. 2 *D*). At the end of this period, the stomach was aspirated and 55 c.c. of a yellowish green material were obtained which had a free acidity of 65 and a total acidity of 75. Ten minutes after aspiration, the pains returned and were more intense than on any previous occasion. The vigorous peristalsis of the stomach returned, synchronous with the return of the pain (Fig. 2 *E*).

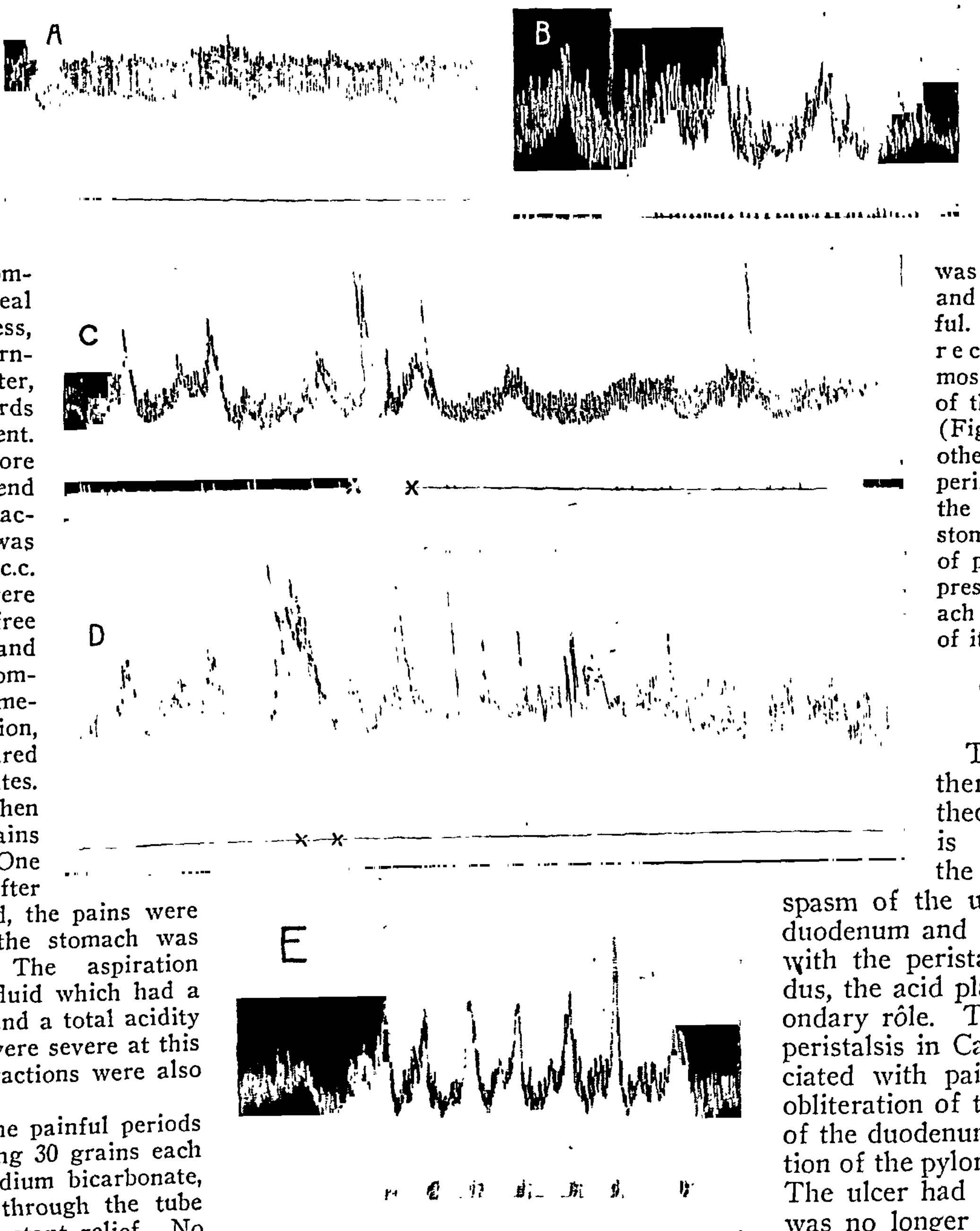


Fig. 2 (Case 2).—Record of the pain in case of gastric ulcer, March 13, 1917: *A*, one hour after the patient had eaten meat, potatoes, vegetables, bread, butter and tea; no pains; stomach contents showed a free acidity of 30 and a total acidity of 50; *B*, three hours after eating (intense pains); stomach contents showed a free acidity of 35 and a total acidity of 60; *C*, 60 c.c. of 0.3 per cent. hydrochloric acid were introduced into the stomach through a tube; *D*, at *x*, sodium bicarbonate and magnesium carbonate, 30 grains each, were introduced into the stomach through the tube; pain ceased five minutes after administration of the alkalis; the stomach was aspirated one and a half hours later, and 55 c.c. of fluid with a free acidity of 65 and a total of 75 were removed; *E*, ten minutes after the aspiration, the contractions became vigorous and the pains returned.

Case 3.—A man, aged 67, was first admitted to the hospital, April 1, 1916, at which time a diagnosis of peptic ulcer of the duodenum was made. He left the hospital, June 13, 1916, apparently very much improved. At that time repeated stomach analyses showed a free acidity of 70 and a total acidity of 110, with an occasional weak positive Weber test. The stools also showed a weak positive Weber test. He returned again, Feb. 25, 1917, very much undernourished, and with all of the classical symptoms of high grade pyloric obstruction. Peristaltic waves were visible in the upper abdomen and as low as half way between the umbilicus and symphysis. The patient was rapidly losing weight, and an operation was performed under a local anesthetic. Carcinoma was found at the outlet of the pylorus. Gastro-enterostomy was performed, and the patient recovered. A number of tracings previous to operation were obtained which revealed the following facts:

There was a hyperperistalsis of the stomach. The digestive peristalsis as seen in the normal individu[illegible] was greatly augme[illegible]- and found to b[illegible]ful. The pains, [illegible] the records sh[illegible] were most severe [illegible] at the end of the peristalt[illegible]ic wave (Fig. 3 *A* and *B*). In other words, when the peristalsis had reached the pyloric end of the stomach, the same type of peristalsis was also present when the stomach had been aspirated of its food contents.

COMMENT ON RESULTS

The results further substantiate the theory that the pain is mainly due to the contraction or spasm of the upper end of the duodenum and pylorus, together with the peristalsis of the fundus, the acid playing only a secondary rôle. That the vigorous peristalsis in Case 1 is not associated with pain is due to the obliteration of the upper portion of the duodenum and lower portion of the pylorus by scar tissue. The ulcer had healed and there was no longer an active hyperirritable process to produce a duodenopylorospasm. The increase in the tension and the hyperperistalsis of the fundus were not sufficient to produce typical gastric pains. This peristalsis is merely intensified digestive peristalsis, which is not subjective in character in the absence of an active hyperesthetic process.

DISCUSSION ON CAUSE OF GASTRIC PAIN

In the normal stomach, as digestion continues and the stomach gradually empties itself, there is an increasing tonus together with a low degree of hyperirritability, which culminates in hunger pains.[4] When there is an active ulcer, or carcinoma at the outlet, these normal processes are intensified and we have distinct gastric pains. If the pain were due to acid corrosion, we would expect that when the stomach contents were sufficiently acid (free acidity from 30 to 50 and total acidity from 40 to 70) pain would be experienced; but the results in Case 2 do not support this theory. When the stomach was relatively quiescent (Fig. 2 *A*) and the stomach contents had a free acidity of 30 and a total acidity of 50, the patient did not complain of pain. Two hours later, with only a slight variation in acidity (free, 35, total, 60) and with marked peristalsis, he complained of severe epigastric pains (Fig. 2 *B*). These pains were temporarily relieved by a 0.3 per cent. hydrochloric acid solution, and the contractions were slightly diminished.

The action of the alkalis in relieving pain is due not merely to the neutralizing of the acid content, but also to their inhibitory action on the contractions of the stomach. The alkalis act partly through a sedative effect on the stomach, in which the vigorous peristalses and painful pylorospasms are inhibited. The neutralization of the acid is probably a minor factor in the relief of pain, as is shown in Figure 2 *E*. The alkalis relieved the pain for one and a half hours, after which the stomach was aspirated of 55 c.c. of fluid, with a free acidity of 65 and a total acidity of 75. Ten minutes after 55 c.c. of acid had been aspirated, pains became more severe than on any previous occasion, and continued until the stomach was washed. The pains returned one hour after the stomach had been washed. The stomach analysis showed this time 55 c.c. of a watery mucus with a free acidity of 60 and a total acidity of 70. The ulcer pain is apparently independent of the variations in acid concentration. There may be intense intermittent pains synchronous with the contractions with no free acid in the stomach. The stomach contents may be highly acid without causing pain.

Case 3 represents a high grade pyloric obstruction in which an active hyperirritable process is present. By means of the kymographic tracing, it was demonstrated, previous to operation, that an active process was present at the pylorus or upper duodenum. The patient invariably recorded pains (of varying intensity) toward the end of a contraction. The fact that pains were experienced when the stomach contained from 12 to 1,500 c.c. of food material, and that the pains were felt only when the peristalsis had reached the pylorus, led to the conclusion that an active process was present at the outlet. Operation confirmed the conclusion.

CONCLUSIONS

1. Ulcer pains may be present in the absence of free acid, and may be temporarily relieved by a 0.3 per cent. hydrochloric acid solution.

2. Gastric ulcer pains may be absent in the presence of high acidity.

3. Any active process (ulcer or carcinoma) producing a hyperirritable condition may result in pain; but the pains are intermittent, being synchronous with the contractions of the stomach, pylorus or duodenum, and bearing no relation to the degree of acidity.

4. Hypertension and hyperperistalsis with high grade pyloric obstruction are not sufficient to produce pain in the absence of an active irritable process (ulcer or carcinoma).

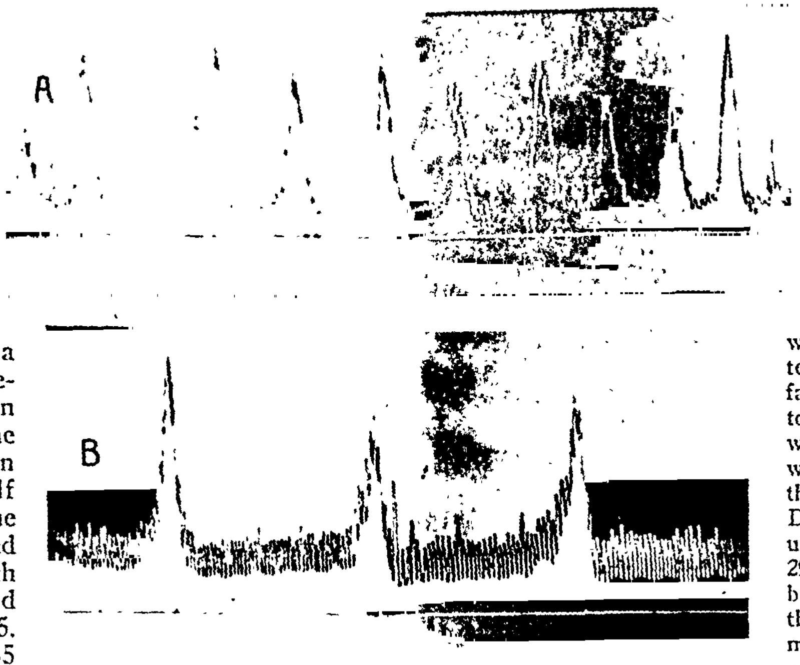


Fig. 3 (Case 3).—Record of the pain in a case of carcinoma of the pylorus, Feb. 22, 1917: *A*, one and a half hours after the patient had eaten toast, milk, egg, soup and cereal; the pain usually occurred toward the end of the contraction; *B*, two hours after the aspiration of 1,300 c.c. of food material; the contractions and pains were present, but not so marked as in *A*.

Malnutrition Among Schoolchildren.—The bureau of child hygiene of the New York City Health Department has just completed a survey of 171,691 schoolchildren of the borough of Manattan. This figure was below the registration figures for the borough, as the survey was made during the intensely cold weather. The fact that the children came to school at this time would indicate that they were rather hardier than those not examined. The Dunfermline scale was used. Of those examined 29,781, or 17.3 per cent., belonged to the first class, that is, were perfectly normal from the nutritional point of view; 104,908, or 61.1 per cent., belonged to the second class; 31,718, or 18.5 per cent., to class three, the so-called borderline cases, and any pronounced change in their living conditions would undoubtedly have a distinct effect on their physical condition; 5,284, or 31 per cent., belonged to the fourth class, which was distinctly undernourished, and in need of immediate supervision and readjustment of life and environment. Of the children 6 years of age, 22.5 per cent. were undernourished. This undernourishment increased in percentage up to 9 years of age, at which 25.2 per cent. were found undernourished. Then followed a gradual decrease up to the age of 16 years, at which only 12.1 per cent. were found undernourished. The general proportion of actual undernourishment for the borough was 21.6 per cent. It was found that nationality played an important part in the consideration of the prevalence of malnutrition. Of the Italian children examined, 28.7 per cent. were found undernourished. The Italian children comprised 23 per cent. of the total number examined. The children from Russia and Poland, who comprised 26 per cent. of all the children examined, were found undernourished in 19.8 per cent. of the cases. The figures for immigrants from other countries ranged from 17 to 20 per cent.

---

[4] Rogers, F. T., and Hardt, L. L. J.: Am. Jour. Physiol., 1915, 38, 274-284.

SPONTANEOUS RUPTURE OF CESAREAN SCAR

REPORT OF TWO CASES

JOSEPH L. DeCOURCY, M.D.
CINCINNATI

While spontaneous rupture of the cesarean scar is not as rare as ordinarily supposed, occurring, as it does, in about 3 per cent. of all cases,[1] yet it is rare enough to occasion interest. For this reason, it may be worth while to report the following cases:

Case 1.—Mrs. H. A., aged 33, was admitted to my service at the Seton Hospital, Oct. 18, 1917. She gave a history of having had three pregnancies covering a period of ten years. Her first child was taken away by craniotomy, several attempts of high forceps having failed. The second was born alive with much difficulty and has since been mentally defective. The third child was delivered by cesarean section transperitoneally, June 4, 1916. In referring to the operative history of this case, I found that the incision was made into the placental site. This is of especial interest, since Spalding,[2] in a recent study of four cases, gave this as a possible cause of the weakening of the resulting scar.

The patient appeared to be in good health. She was 4 feet and 10 inches in height, and had been pregnant eight months, with neither signs nor history of tuberculosis or syphilis. Vaginal examination showed a contracted pelvis, especially in the anteroposterior diameter. The scar on the abdomen was scarcely noticeable and had apparently healed by first intention.

Fearing a possible rupture of the cesarean scar, I decided perform the second cesarean operation, the following morning, and preparation was made accordingly. Throughout the night the patient seemed restless and vomited twice. At 8 o'clock the following morning, she experienced a severe pain in the abdomen and went into a state of collapse. She was immediately given a quarter grain of morphin and was taken to the operating room.

The abdomen was opened under local anesthesia and the child was found lying among the intestines with the membranes intact. The abdomen was filled with blood, and the uterus was laid wide open by a longitudinal tear corresponding to the previous cesarean scar, and, although contracted into the pelvis, it was bleeding profusely. Under mild ether inhalations, a rapid supravaginal hysterectomy was performed and the patient returned to bed. The postoperative course was very stormy, and although the patient apparently rallied from the shock, she never became rational. She died on the third day following the operation from general peritonitis.

Case 2.—I was called in consultation to the home of Mrs. M. A., aged 28, Oct. 25, 1916. The physician in attendance told me that she had been in labor about six hours and that the os had been fully dilated when she had suddenly experienced a terrific pain in her abdomen and had gone into a state of collapse. Six years previously, she had had one living child delivered by a transperitoneal cesarean section, because of a contracted pelvis.

When I first saw her, one-half hour after the apparent rupture, she had a subnormal temperature and a pulse so weak and rapid that it could not be counted. The child could be distinctly palpated and outlined lying in the abdominal cavity, and vaginal examination revealed the uterus contracted into the pelvis.

The patient was immediately sent to the hospital, but was dead before she reached it. On her arrival, the abdomen was opened with hopes of resuscitating the child, but the effort was futile. The child was lying among the intestines with the membranes ruptured. The placenta was found in the pelvis extruding from the ruptured uterus. The abdomen was filled with blood.

COMMENT

The first of these cases is exceptionally interesting because of the early rupture and its occurrence at the end of the eighth month. The second case is interesting because of the long period, six years, since the patient's previous cesarean section.

In each of these cases, the incisions in the abdomen were unusually large for the cesarean operation, and although the tears in the uterus may have extended beyond the previous scar, they were unusually long, extending well over the posterior surface of the fundus.

In these two cases it was impressed on me that a comparatively small incision into the uterus in a cesarean operation is of advantage, and also that when a second cesarean operation is considered advisable in a patient having a cesarean scar, the operation should be performed not later than the end of the eighth month. For at this time, the life of the child will not be jeopardized, and the possibility of rupture up to this time is comparatively small.

827 West Eighth Street.

---

[1] 1. Rongy, A. J.: Am. Jour. Obst., 1916, 74, 954.

[2] 2. Spalding, A. B.: Cesarean Section Scars, The Journal A. M. A., Dec. 1, 1917, p. 1847.

NEUTRAL SOLUTION OF CHLORINATED SODA (DAKIN'S SOLUTION) IN THE NORMAL PERITONEAL CAVITY

AN EXPERIMENTAL STUDY *

F. C. MANN, M.D., and W. G. CRUMLEY, M.D.
ROCHESTER, MINN.

The purpose of this research was to determine whether or not neutral solution of chlorinated soda (Dakin's solution) could be used with safety in the peritoneal cavity. The series of experiments was begun with the sole idea of deciding this point for our own benefit, as we believed that other investigators more closely associated with the work would soon publish similar experiments. Since this has not been done, we thought it might be of value briefly to give our results.[1]

All of the experiments were performed on dogs. In some cases the animals were etherized and the effect of the injection of the solution on the blood pressure was noted. In other experiments, the symptoms produced by the injection on the normal animal were studied.

The solution was made fresh for each day's experiments except in those cases in which it was desired to observe the effect of an old preparation, and the hypochlorite concentrate varied between 0.45 and 0.50 per cent. and was neutral.

The usual effect of an intraperitoneal injection of a fresh preparation of Dakin's solution into an etherized dog is an immediate and marked drop in blood pressure, which progresses until it becomes quite low. This result is, of course, more marked when large amounts (300 c.c.) of the solution are employed, but also occurs at times with relatively small quantities. Usually, however, when small amounts (10 c.c.) are used, the blood pressure is at first slightly increased

---

* From the Mayo Clinic.

* On account of lack of space the details of animal experiments are omitted. They appear in the author's reprints of the article.

[1] 1. It should be emphasized that no conclusions are drawn either in regard to the use of Dakin's solution or the employment of the Carrell-Dakin method of wound treatment.

but is soon followed by a decrease. It may or may not return to normal (Experiments 212-17 and 253-17, and Fig. 1).

The first effect produced by the intraperitoneal injection of Dakin's solution in an unanesthetized dog is evidence of pain. This has been elicited with as small an amount as the first 2 c.c. of an injection. The animal develops a marked abdominal rigidity, spontaneously passes feces and urine, vomits, and becomes very restless. When the injection has been relatively small (10 c.c.), the effects gradually decrease, and may have practically disappeared within an hour or two. When larger amounts are injected, the animal may be restless until death occurs.

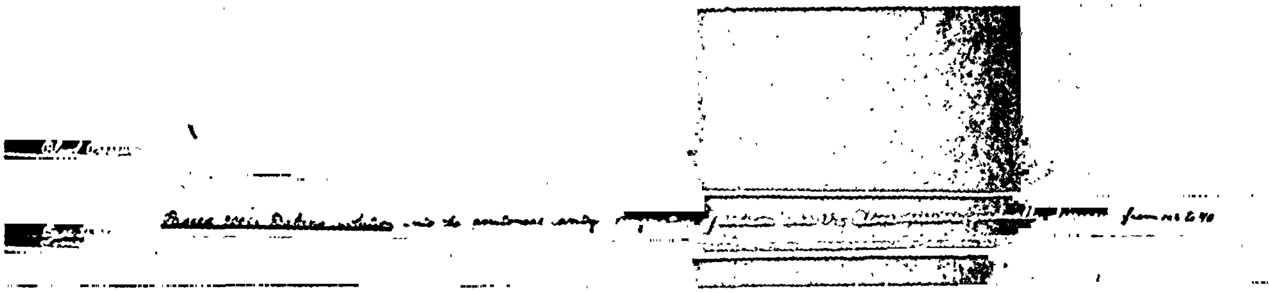


Fig. 1 (Experiment 253-17).—Kymograph record showing the effect of the injection of Dakin's solution on blood pressure.

At the necropsy of a dog dying after the intraperitoneal injection of Dakin's solution, three changes are always noted. The peritoneal cavity and usually the pleural cavities contain a dark blood-stained fluid. There may be quite large amounts of this fluid present. The omentum and the intestine are perforated with numerous holes, and in some cases only the large blood vessels of these structures remain. The parietal peritoneum on the side on which the animal has lain is edematous.

The effect of the injection of Dakin's solution into the pleural cavity is practically negligible both in the anesthetized and in the unanesthetized animal. Of course, owing to the mechanics of the thorax, only relatively small amounts of the solution can be injected. Blood pressure is only slightly affected; the animal does not show signs of pain. In one dog, 20 c.c. of the solution injected into the right pleural cavity did not produce any noticeable effect, while 5 c.c. injected intraperitoneally produced a marked reaction (Experiment 290-17).

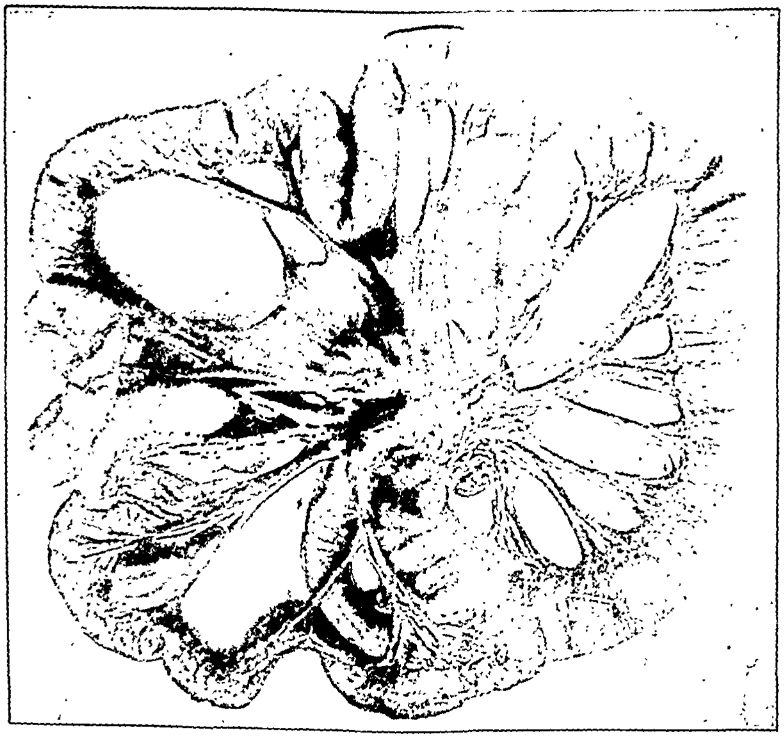


Fig. 2 (Experiment 212-17).—Intestine and mesentery after an intraperitoneal injection of Dakin's solution.

The intravenous injection of Dakin's solution in the dog is comparatively not very dangerous. Carrel and Dehelly state that the solution is very dangerous when injected into the general circulation of rabbits. The only changes noted were increased coagulation time and a laking of the blood, which assumes a very dark color. Blood pressure is only slightly affected by doses which produce a marked reaction when injected intraperitoneally. The intravenous injection of 180 c.c. in 30 c.c. doses every half hour did not produce any other changes except those noted as affecting the blood (Experiment 319-17).

In one series of experiments the effect of an old preparation of Dakin's solution was studied. After the usual results had been obtained with the fresh solution, the remaining portion was tightly corked in an amber-colored bottle and placed in a dark room in which the temperature was not more than 20 C. The effect of the intraperitoneal injection of a solution kept under such conditions for three or four days was practically negligible.

CONCLUSIONS

1. The intraperitoneal injection of various amounts of Dakin's solution in the dog produces (*a*) decrease in blood pressure, (*b*) pain, (*c*) marked serous exudate, (*d*) erosion and perforation of the omentum and mesentery, and (*e*) with rather large amounts, eventually death.

2. The injection of Dakin's solution into the pleural cavity, in amounts too small to produce a mechanical action, is without noticeable effect.

3. The intravenous injection of Dakin's solution in amounts large enough to produce a marked reaction

---

2. Carrel, Alexis, and Dehelly, D.: The Treatment of Infected Wounds, New York, Paul B. Hoeber, 1917, p. 32.

This method renders the operation relatively simple and harmless, in that a knife is not used, and the pleura is punctured only once, when the cocain is injected.

The air does not enter the pleural cavity so rapidly, there is practically no tissue injury, bleeding nor subcutaneous emphysema, and the danger of pleural shock and embolism are practically eliminated.

Patients who have tried both methods are enthusiastic in their praises of the new method, as there is no more discomfort than in a hypodermic injection.

Military Medicine and Surgery

ARMY CARDIOVASCULAR EXAMINATIONS

A CLASSIFICATION OF ABNORMALITIES WITH REFERENCE TO REJECTION, ACCEPTANCE, OR SPECIAL SERVICE OF RECRUITS

GLENTWORTH R. BUTLER, M.D.
Recently Contract Surgeon and Cardiovascular Examiner, United States Army
BROOKLYN

The work on which these comments are based was in two parts: The first part was a final cardiovascular survey of about 25,000 national guardsmen at Pelham Bay and Camp Mills, both of which were tent camps, requiring about six weeks for its performance. The guardsmen were also examined for tuberculosis, but I confine this paper to the heart work. The second part of the work was the service rendered by my colleagues and myself as members of the cardiovascular consulting board at Camp Upton, a cantonment of the National Army, during a period of four weeks during the arrival of the fourth increment of the first draft.

METHODS OF EXAMINATION

At Pelham Bay and Camp Mills the number of examiners varied from five to twelve, according to need. The necessity was great, and in both camps the work was pushed with the utmost speed, under the command of Major L. A. Conner, M. R. C.

Permission was obtained to use one of the large Red Triangle tents. The troops were examined by companies, each containing about 250 men or similar units, officers first. The enlisted men then entered at one end of the tent and were formed in two lines, each in charge of a noncommissioned officer, whose duties were to preserve order, prevent smoking and loud talking, and to see that each man stripped to the waist and carried his clothes on his arm. He also saw to it that at least two men were constantly in front of each examiner, so that when one man had been examined, the next immediately stepped forward. As each man finished, he passed out at the farther end of the tent. The examiners were stationed along each side of the farther half of the tent. In the middle was a table at which sat two clerks, each with a roster of the company. Here also were benches for rejected men and doubtful cases. As each man was examined, he reported "O. K." to the nearest clerk, or was sent to the benches for further examination. In the latter case, the examiner usually made a brief note which was sent to the ranking medical officer, who acted as referee. It was only by this careful attention to detail that the requisite speed could be obtained.

While the company or other unit was passing through the tent, the papers of those unquestionably rejected were made out. The doubtful cases were then examined by at least three, and if of special interest, by nearly all, of the examiners. The decision of the ranking officer was, of course, final. In this manner a team of from ten to twelve examiners put through about 1,000 men a day, the work including auscultation for active tuberculosis. Percussion was always difficult, and sometimes impossible, because of the unavoidable noise and confusion incident to the voluntary coughing required to elicit râles. Each one of the team averaged from ninety to a hundred men per day—too many for the best results.

The hours of work were from 9 to 5, with an intermission for lunch. Six and one-half hours may not seem long, but the examiners were constantly on their feet, and engaged in intensive work Going so rapidly, they found it necessary to concentrate their attention to the utmost in order not to miss something which ought not to be missed. At times the examiner would draw out an empty diagnostic net fifty or a hundred times in succession, and begin to doubt his own faculties. On one occasion, however, an examiner found two aortic insufficiencies, one following the other, after which he regained a little self-confidence.

It was usually possible to devote a little more than three minutes to each man, for both heart and lungs. The routine followed by most of us was to locate the apex by palpation, observe the general shape of the thorax, look for enlargement of the thyroid, percuss the right and left second interspaces, and scrutinize the neck, the upper sternal region, and the precordium for abnormal pulsations. The last step was to auscultate, in succession, the cardiac apex, the second interspaces to the right and left of the sternum, and the third left costosternal junction, the last being auscultated while breathing was suspended, especially for the soft diastolic murmur of aortic insufficiency. During auscultation we not only noted the presence of murmurs and adventitious sounds, but also carefully observed the character of the first sound, and the character and relative accentuation of the aortic and pulmonary closure sounds. If the heart action was rapid, its rate was counted. The wrist watch proved an extremely convenient article.

If any abnormality was found, unless indubitably negligible, the man was held for a more detailed examination. Observation of the effect of the recumbent position on murmurs, and of the effect of the exercise test on the heart and the respiration rate was most useful. The exercise test consisted in the recruits hopping on one foot 100 times. The pulse rate was taken before, and immediately after, the hops, and again two minutes later, at which time it should have come back to nearly normal, and the dyspnea should have largely subsided. Working in this fashion, and with persistent concentration, we hope that not many defective hearts escaped our observation.

The work at Camp Upton was of a somewhat different character. The cardiovascular consulting board consisted of Lieut. E. J. Riley, M. R. C., Dr. Tasker Howard, contract surgeon, and myself. We examined only those men who, while passing through the routine examination by the regular teams, were considered to require a special heart examination. Out of 10,850 drafted men, 340, or 3.1 per cent. were sent to us for judgment. Of this number, sixty, or 17.7 per cent., were rejected by us.

From time to time, it was necessary to recall men for reexamination on the next, or a subsequent, day. This occurred most frequently with the men suffering from tachycardia, occasionally in cases of extra systole or of poor response to the exercise test. Such a reexamination also proved most useful in a very few instances in which there was reason to suspect that a man had come primed to the minute with belladonna, to cause a tachycardia, or with digitalis, to simulate an organic heart-block, or auricular fibrillation, or coupled beats. There were some men, gratifyingly few, who had fought John Barleycorn the night before. A day or two of waiting cleared up a large percentage of such abnormal findings.

In general, it may be said that the conditions which had escaped observation in previous examinations—for all these men had been examined from one to three times—were hyperthyroidism, mitral stenosis, and aortic insufficiency. The diastolic murmur of the last condition, often extremely soft and almost inaudible, is the one bruit that can at times be heard by immediate auscultation, when it cannot be detected by the stethoscope. But after catching one of these shadowy diastolics, the examiner found it difficult not to hear it in the next three or four hearts. Thickened radials, with a normal blood pressure, were of frequent occurrence.

STANDARDS ESTABLISHED

Until one examines a few thousand presumably normal hearts, one has no idea of the abnormalities that may be found, or of the difficulty that may be experienced in deciding whether they should be considered as cause for rejection, acceptance, record only, or for special service. It was a source of regret that, up to the end of our term, we were required either to accept, with or without record of findings, or to reject. We found, for instance, an architect, a draftsman, an artist, a printer, public accountant, and a number of stenographers and typists, who were not fit for full military duty, but who were perfectly able to carry on their habitual work. These we were obliged to reject at a time when there was an apparent need for them in Army work. But it has been stated that in the near future, the men will be either accepted, rejected, or assigned to special service.

The Surgeon-General has laid down some very definite rules for the guidance of cardiovascular examiners. The normal heart is defined as one with the apex impulse within the left nipple line and not below the fifth interspace, of normal, not heaving character, with normal sounds, without murmurs, without pulsation or dulness above the base of the heart, with regular pulse of normal rate, and with no unusual thickening of the arteries or evidences of high blood pressure; and finally it shows a normal response to the exercise test.

But there is a considerable number of abnormalities that do not furnish grounds for rejection, as well as those that do. Furthermore, there are abnormalities which in the future will allow a conditional acceptance of the recruit, but will require additional observation by the medical officers of each recruit's unit, in order to determine the effect of training.

From a practical point of view it has seemed useful to classify the abnormalities that may be found, in order to facilitate the making of the proper recommendation.

I. *Abnormalities requiring unconditional rejection.*—1. Hypertrophy sufficient to cause a heaving impulse to the left of the nipple line, or below the sixth rib, usually due to hypertension or valvular disease.

2. Diastolic murmurs at the apex or base.

3. Presystolic murmurs at the apex or base.

4. Systolic murmurs over the aortic area, if harsh and heard well up in the neck, or if associated with thrill, or with a markedly weak aortic closure sound.

5. Loud systolic murmurs audible at the apex and the back, if associated with hypertrophy, or snapping first sound, or accentuated pulmonic closure sound.

6. A loud, harsh, systolic murmur heard over the upper left chest, front and back, or associated with thrill during quiet breathing, as in congenital cardiac disease.

7. Considerable dilatation of the aorta, or

8. Slight dilatation of the aorta, with a positive Wassermann reaction. The presence of the dilatation is to be determined by roentgen-ray examination.

9. A pulse constantly more than 100, when the man is recumbent.

10. A persistent pulse rate of 50 or less, if heart-block is proved by tracings or electrocardiograms.

11. Extrasystoles, but only when very frequent and persistent, with poor response to exercise, as determined by watching the man during his training.

12. Complete and permanent irregularity of the pulse, in other words, auricular fibrillation.

13. A systolic blood pressure of 200 or more or a diastolic pressure of 120 or more, when the man is quietly recumbent.

14. Aneurysm in any vessel.

II. *Abnormalities permitting unconditional acceptance for full military service.*—1. Systolic apical murmurs, on excitement, especially when recumbent.

2. Systolic accentuation of the respiratory murmur, especially on inspiration, heard near the apex or over the back.

3. Systolic murmurs heard over the second and third left interspaces. With few exceptions these are accidental, and often disappear during full inspiration.

4. A slight systolic murmur over the second right intercostal space, when it is the only abnormal sign, and the response to exercise is normal and unattended with marked dyspnea or precordial distress.

5. Other systolic murmurs not attended by hypertrophy, alteration of the first sound, accentuated pulmonary closure sound, or abnormal response to exercise. These should be recorded, F. R. O.

6. Findings in accordance with the special order of the Surgeon-General's Office, War Department, Oct. 25, 1917, which direct that recruits who show loud systolic murmurs, audible at the apex and in the left back, if unassociated with any definite enlargement of the heart, or with snapping first sound, or accentuation of the pulmonic second sound, and in whom the response to exercise is normal, may be accepted for full military service, but that the physical sign present shall be entered on the record.

7. Slight dilatation of the aorta, determined by the roentgen ray, with a negative Wassermann reaction, if it is the only impairment, with no symptoms, and with a normal response to exercise.

8. Bradycardia with normal rhythm and normal response to exercise.

9. Extrasystoles, that is, premature contractions, if occasional, without hypertrophy, and with a normal response to exercise.

10. Sinus arrhythmia, that is, respiratory irregularity of the pulse.

11. Thickened arteries, without cardiac hypertrophy or high blood pressure, and with normal response to exercise.

12. Unusual findings, not covered by instructions, if there is no cardiac hypertrophy and if the response to exercise is normal.

III. *Abnormalities permitting acceptance, but to be reported to the camp surgeon with a request that the recruit be watched during training.*—1. Persistent extrasystoles, if only impairment.

2. History of attacks of severe tachycardia with dyspnea.

3. Normal heart, but with poor response to exercise, and with a past history of incapacity for physical exertion.

IV. *Abnormalities which permit a recommendation for special service requiring little bodily exertion.*—1. Dilatation of the aorta, or syphilitic aortitis, if without symptoms.

2. Systolic blood pressure more than 160, but less than 200; or a diastolic more than 100 and less than 120, if persistent.

3. Heart normal, but with the response to exercise impaired, and a past history of incapacity for bodily exertion.

SIGNS OF VASOMOTOR INSTABILITY

The cases that gave us the greatest difficulty in decision were the tachycardias, with the pulse ranging from about 120, when the recruit was standing, up to 40, 160 or 180 after exercise. After a time we arned to separate these men into three groups:

1. The cases of purely nervous tachycardias, in easily disturbed persons. Some of the recruits had a history of a rapid pulse whenever examined. Some were excited for fear of rejection, and a very few for fear they would not be rejected. The tachycardias in these cases, as well as the rapid pulses due to exertion immediately before examination, were for the most part easily eliminated by a few minutes of quiet, with the recruit in a recumbent position, or if not by this, by a reexamination a day or two later.

2. The cases of tachycardia which showed a barely perceptible thyroid enlargement, slight tremor, moderate dermatographia, and other signs of vasomotor instability, but no eye symptoms. These were by far the most difficult to decide, and were very much more common than our civil practice would suggest. The majority of the men were of excellent physique and were keen for service, but were excitable and perhaps somewhat on the so-called neurasthenic order. Clinically, one would make a diagnosis of a mild hyperthyroidism, or beg the question of etiology by calling it vasomotor ataxia of unknown origin. It was so hard to decide about these men that on one occasion we had a special examination of a baker's dozen. Each one was examined by every member of the board at Camp Mills, and the question of acceptance or rejection voted on by the whole board for each subject. Most of the men were accepted, but the voting was by no means unanimous. This incident is mentioned simply to show that, even after a fairly large experience, there is room for difference of opinion in these puzzling cases.

Several of us believed, and still believe, that such men, desirable as they may be in all other respects, will not be able to stand the strain of service. This opinion has been voiced by Osler,[1] who, to use his own words, "sees the wastage of the recruiting office." He says: "The trenches are no place for the man with unstable vasomotors. In the strain of war they break like dry twigs, and become a heavy burden on the hospitals and convalescent homes. In all cases, when in doubt, give the country the benefit."

3. Exophthalmic goiter. When there was no doubt as to diagnosis, men with marked exophthalmic goiter were, and should be, rejected.

In this connection, it is of interest to mention the extraordinary prevalence of the plain cystic goiter in men from certain parts of the country, especially from the northern part of New York and from the other states bordering on the Great Lakes. Provided there were no evidences of hyperthyroidism, these men were nearly all accepted, but were made F. R. O.'s. A negligible few were not accepted because of certain symptoms following exercise, which indicated undue pressure on the trachea—a purely mechanical effect.

As to the tachycardias in general, it may safely be said that it is often impossible in one examination to distinguish with certainty between the nervous and the slight hyperthyroid cases. It should be the rule to reexamine after the lapse of one or more days—a week, if possible. If a second examination is impracticable, the medical officer of the soldier's unit should be requested to keep the latter under observation during his training, that is to say, ascertain the results of a functional test.

226 Gates Avenue.

---

[1] Osler, Sir William: War Wastage, The Journal A. M. A., July 28, 1917, p. 290.

ACIDOSIS IN SHOCK *

W. S. McELLROY, B.S., M.D.

PITTSBURGH

At the suggestion of the National Research Council, extensive investigations on shock have been undertaken. Numerous theories have been offered as to the cause of the condition termed "shock." One attributes the condition to acidosis, and sodium bicarbonate has been suggested in the treatment.

In connection with observations on shock carried on in this laboratory, a preliminary report of which has been published,[1] studies on the acidosis factor were undertaken. The results of these observations form the context of this report.

METHODS OF EXPERIMENTATION

The method of producing shock and judging of the condition has been described in a previous report.[1] Essentially, they comprise prolonged strong rhythmic stimulation of the afferent nerves of dogs, under ether anesthesia. Under such circumstances the time required to establish the condition varied greatly in different animals. When necessary, the onset of the condition was hastened by other means, such as exposure and manipulation of the abdominal viscera. In later experiments peripheral nerve stimulation combined with partial cerebral anemia was found to be the most satisfactory procedure yet employed in refractory cases.[2] Anemia was produced by temporary occlusion of arteries supplying the medulla and brain. It should be noted that blood was always lost, but the quantity was not great, being limited to the amount unavoidably escaping from operative procedures and samples withdrawn at intervals for analyses.

The methods used for studying acidosis were the indicator methods of Levy, Rowntree and Marriott for H-ion concentration;[3] of Marriott for reserve alkalinity,[4] and of Van Slyke for plasma bicarbonate.[5]

---

* From the Laboratory of Physiological Chemistry, University of Pittsburgh School of Medicine.

[1] Guthrie, C. C.: Experimental Shock, The Journal A. M. A., Oct. 27, 1917, p. 1394.

[2] Guthrie, C. C.: Observations in Shock, Proc. Am. Physiol. Soc., 1917; Am. Jour. Physiol., to be published.

[3] Levy, R. L.; Rowntree, L. G., and Marriott, W. M.: A Simple Method for Determining Variations in the Hydrogen-Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

[4] Marriott, W. M.: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med., June, 1916, p. 840.

[5] Van Slyke, Donald D.: A Method for the Determination of Carbon Dioxid and Carbonates in Solution, Jour. Biol. Chem., 1917, 30, 347.

In the early experiments, the indicator methods for H-ion concentration and reserve alkalinity being used, variations in different animals were found. In some cases there was no change, while in others there was an increase in concentration. The greatest variations occurred in reserve alkalinity.

In later experiments aimed primarily at the acidosis factor, Van Slyke's method for plasma bicarbonate was employed. This method was chosen, first, because the preliminary experiments showed greatest changes in reserve alkalinity, and in some cases no change in the H-ion concentration itself. Secondly, because our use of the term acidosis is based on the work of Henderson,[6] Van Slyke[7] and others, namely, that the blood bicarbonate is the criterion of the acid base balance of the body.

Van Slyke's technic was followed in detail. Blood samples were drawn from the femoral vein by the syringe method. Coagulation was prevented by neutral potassium oxalate. The blood was immediately centrifuged and the plasma removed, saturated with the expired air of the operator, and 1 c.c. taken for analysis.

RESULTS

1. *Plasma Bicarbonate in Ether Anesthesia.*—The observations on normal dogs before the administration of ether have fallen within the range for normal adults given by Van Slyke (from 53 to 77 per cent. of carbon dioxid by volume). Following the administration of ether a considerable decrease in the plasma bicarbonate was noted. We have observed that under anesthesia only, before the measures employed to induce shock were begun, the bicarbonate content of the plasma ranged between 40 and 50 per cent. of carbon dioxid by volume. In one case, we observed 55.7 per cent. of carbon dioxid by volume under ether anesthesia. This was due, no doubt, in part to the muscular activity associated with the administration of the anesthetic.

2. *Plasma Bicarbonate in Shock.*—In general there was a gradual decrease in reserve alkalinity associated with shock production. The results obtained *in shock* ranged between 35 and 45 per cent. of carbon dioxid by volume. The amount of decrease varied in different animals. In some cases the results were very slight, being only 5 per cent. of carbon dioxid by volume; in others they were more marked, 10 per cent. of carbon dioxid by volume being observed. Two animals were reduced to a profound state of shock, showing a bicarbonate content of plasma within the range of other animals before shock production. The results of two experiments illustrating this point are given in the accompanying tabulation.

PLASMA BICARBONATE IN SHOCK

	Per Cent. of Carbon Dioxid by Volume	
	Exp. 30	Exp. 31
Before shock production, immediately after administration of anesthetic	55.7	40.0
During period of shock production	51.9	40.0
Animal showing symptoms of profound shock	49.0	35.3

3. *Injection of Sodium Bicarbonate in Shocked Animals.*—The injection of sodium bicarbonate in shocked animals brought the reserve alkalinity back to the upper limit of normal. This return of reserve alkalinity to normal was not associated with improvement in the condition of the animal in excess of that probably due to the volume of fluid injected.

4. *Shock Production Without Decrease in Reserve Alkalinity.*—By the injection of sodium bicarbonate the reserve alkalinity was maintained within the normal range. By the usual methods, the animal was reduced to a state of profound shock. No increased resistance to shock was noted by so maintaining the reserve alkalinity.

5. *Experimental Acidosis.*—By the intravenous injection of lactic acid a primary acidosis was produced. By the injection of acid the reserve alkalinity could be lowered at will. When the reserve alkalinity had been lowered within the range observed in shocked animals, no change could be noted in the condition of the animal. It was necessary to lower the reserve alkalinity from 10 to 15 per cent. of carbon dioxid by volume below the range of shocked animals before a material fall in blood pressure occurred. The further injection of acid produced a rapid fall in blood pressure to a very low level, with cardiac and respiratory failure. At this point artificial respiration and cardiac massage alone were ineffectual, but, combined with the injection of sodium bicarbonate, produced prompt recovery and return of reserve alkalinity to normal.

SUMMARY OF RESULTS

In the type of experimental shock studied there was a gradual decrease in the reserve alkalinity of the blood. The decrease varied in different animals. Anesthesia was an important factor. In some instances, the reserve alkalinity in shock was as great as in other animals before shock. This shows that acidosis was not an important causative factor. In no case was a change in reserve alkalinity sufficient to account for the condition observed.

In experimental primary acidosis the alkali reserve may be lowered to a degree observed in shock without producing any marked change in the condition of the animal.

The injection of sodium bicarbonate into animals reduced to a terminal state by injection of acid resulted in prompt recovery.

The injection of sodium bicarbonate into animals in shock was without beneficial action, although the reserve alkali was restored.

Shock may be induced while the alkali reserve is maintained by injection of sodium bicarbonate.

CONCLUSION

In the type of experimental shock studied, acidosis was not the cause but one of the many secondary changes associated with the condition.

---

[6] Henderson, L. J.: The Theory of Neutrality Regulation in the Animal Organism, Am. Jour. Physiol., 1908, **21**, 427; Das Gleichgewicht zwischen Basen und Säuren im tierischen Organismus, Ergebn. d. Physiol., 1909, **8**, 254.

[7] Van Slyke, D. D., and Cullen, G. E.: Studies of Acidosis, Jour. Biol. Chem., 1917, **30**, 289.

Health Conditions in Newark.—The death rate of Newark during 1917, according to the *Monthly Bulletin* of the department of health, was 15.3 per thousand on an estimated population of 405,000, as against a rate of 16.5 for 1916. There was a total of 6,205 deaths, the figures for the extreme of life being 1,461 under 5 years and 2,892 at 45 and above. There were 11,824 births, a rate of 29.1 per thousand, as against 29.7 for 1916. There were 1,038 deaths under 1 year, a rate of 87.8 per thousand births. This is a decrease of 1.8 from the rate for 1916. Deaths for the six chief contagious diseases, including poliomyelitis, were 304 as against 851 for 1916 when the epidemic of poliomyelitis swelled the figures, which were 376 for 1916, as against 11 for 1917.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading matter

SATURDAY, MARCH 23, 1918

THYROID HYPERPLASIA AND IODIN

In view of the widespread distribution of simple goiter in the United States as well as in those countries which have been the classic localities of thyroid enlargement in considerable portions of the population, it is rather surprising that so little attention has been paid to the subject. The hopeful aspect of the goiter problem lies in the fact that the malady is almost always easily avertible. The magnitude of the incidence of thyroid enlargement in man is indicated by the suggestive investigations which Marine and Kimball[1] of Western Reserve University have conducted in the interest of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association. In a complete census of the condition of the thyroid gland in girls from the fifth to the twelfth grades of the school population of a large community at the southern edge of the Great Lakes goiter district, they found that 2,184, or 56 per cent., had enlarged thyroids, 13 per cent. having well defined persistent thyroglossal stalks. These startling facts correspond with what might have been anticipated only by consideration of goiter statistics from some of the most conspicuous goiter regions of Europe.

To meet this situation a systematic scheme of administration of iodin in some form has been proposed. Its efficacy is admitted; and the widely adopted plans of school inspection by duly appointed medical experts seem to furnish an almost ideal opportunity for observing the results of a wholesale attempt to counteract the tendency to goiter that prevails in many localities. Wherever the thyroid hyperplasias have been encountered and carefully investigated, they have yielded to the iodin therapy. Marine and Kimball state that from the practical standpoint, the first instance of *preventing* goiter on a large scale was accidental and in connection with the sheep raising industry of Michigan. Prior to the discovery of salt deposits around the Great Lakes, the future of the industry seemed hopeless; but with the development of the salt industry and its use by the sheep growers, goiter rapidly decreased. The explanation is furnished by Marine. The salt contains appreciable quantities of both bromin and iodin, and in places these elements are extracted commercially. The second instance of goiter prevention on a large scale was in brook trout, and the disease was averted in the hatcheries by the use of small amounts of tincture of iodin added to the water.[2] Similar possibilities have been suggested to prevent the fetal myxedema of pigs and the hairless pig malady that has been definitely associated with a hyperplasia of the thyroid gland of this species.[3] We have already directed attention to the widespread experience, in the northwestern part of the United States, of the animal growers in obtaining young that are born dead and hairless, or, if alive when born hairless, die in a short time.[4]

There seems little doubt that the immediate cause of these thyroid disturbances is associated with a deficit of iodin in the gland itself. The avidity of this tissue for iodin is now well known, analyses of the hyperplastic glands confirm the deficit of the element, and the remedial response to iodin medication is an added indication of the correctness of the view just stated. The first impulse is to assume, in the light of what has been found, that a deficiency of essential iodin in the food supply is responsible for the pathologic condition so often observed in the thyroid of both man and animals. The extensive investigations now undertaken from the standpoint of animal nutrition have an immediate interest for human pathologic physiology. It has actually been shown that feeds from all parts of the country tend to be extremely low in their content of iodin; and there are no obvious distinctions that can be ascribed to different localities. Hart and Steenbock have accordingly formulated the query whether the primary cause of thyroid hyperplasia, such as they have observed in swine, may not be associated with a failure to absorb iodin from the digestive tract or to a faulty metabolism of the gland rather than to an extreme shortage of the element. They have observed that the same feeds which produce hairless and dead pigs can be so combined as to produce normal young. It thus seems that if certain unknown conditions are favorable, an animal may obtain from natural feeds the iodin required for both her own and the fetal thyroids. If unknown unfavorable conditions prevail, the animal may then obtain barely enough for her own thyroid activity and not enough for fetal thyroid development. In other words, a ration that is near the border line of deficiency in iodin and, as Hart and Steenbock express it, slightly out of balance in some other respect, may affect some individuals more than others. This seems to be particularly true during the period of most rapid growth. In recognizing a corrective factor in iodin we need not overlook the possibility of deficient functions which are a secondary yet important consideration in the complete solution of the difficulty. None of the more recent experimental evidence, however, gives support to the hypothesis that the enlarged thyroid is the result of a specific infection.[5]

---

[1] Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter in Man, Jour. Lab. and Clin. Med., 1917, **3**, 40.

[2] Marine, David, and Lenhart, C. H.: Observations and Experiments on the So-Called Thyroid Carcinoma of Brook Trout, and Its Relation to Ordinary Goiter, Jour. Exper. Med., 1910, **12**, 311.

[3] Smith, G. E.: Fetal Athyreosis: A Study of the Iodin Requirement of the Pregnant Cow, Jour. Biol. Chem., 1917, **29**, 215. Hart, E. B., and Steenbock, H.: Thyroid Hyperplasia and the Relation of Iodine to the Hairless Pig Malady, I, Jour. Biol. Chem., 1918, **33**, 313.

[4] Fetal Athyreosis, editorial, The Journal A. M. A., July 7, 1917, p. 43.

NEW PHYSIOLOGIC ASPECTS OF RADIOACTIVITY

The "laborious and diligent search after truth," which is the dictionary's interpretation of research, ordinarily exhibits so much of a routine character and so much reiterated effort in traditional directions that the suggestion of something novel is always decidedly refreshing. In this spirit we refer to somewhat startling observations by Zwaardemaker,[6] physiologist at the University of Utrecht, leading him to the hypothesis that radioactivity possesses peculiar significance for the automaticity of the heart beat. He has pointed out that of the comparatively small group of elements — essentially twelve in number — which make up animal tissues, two possess a very characteristic atomic property which may enable them to exert unusual influences. Iron is ferromagnetic, but this property is concealed by the presence of other elements in the body. Potassium is reputed to be radioactive.[7] Although its radioactivity is of extremely low order and therefore very little pronounced, the property remains in the compounds of the element, "so that it may be expected to reveal itself in the organism anywhere at any time."

The powerful effects of radium on living tissues are beginning to be appreciated. They are somewhat similar to those of intense ultraviolet light, but much more powerful. It is known that the negatively charged beta-particles of radium produce coagulation of oppositely charged colloids, and the effect appears to be an electrical one. It is a long step, however, from such pronounced effects to the more subtle possibilities suggested by an element so weakly radioactive as is potassium. Potassium is stated to emit exclusively beta-rays of a high penetrating power; but a photographic plate is said to be rendered appreciably black by potassium only after fifty-six days. Its ionizing power is a thousand times weaker than that of uranium, which in turn is a million times weaker than radium.

Zwaardemaker has attempted to detect any possible physiologic function of the feeble radioactivity of potasssium by ascertaining whether it can be replaced by other radioactive elements in such artificial perfusion fluids as that of Ringer. It is well known to the student of experimental physiology that the excised heart, which beats automatically when perfused by a suitable circulating medium, comes to a standstill when potassium is omitted from such a fluid. Zwaardemaker reports that solutions containing equiradioactive quantities of rubidium, thorium or uranium in place of potassium are quite effective. The remarkable equiactivity manifesting itself, says Zwaardemaker, in appropriate doses gave rise to the presumption that the substitution is feasible only on the ground of the radioactive, atomic property of these elements, and is not to be ascribed to any other factor. Not only radioactive elements administered internally to the surviving organ but also radiation in appropriate dosage was capable of sustaining the automaticity when potassium was lacking. We are promised demonstrations that the effect of radioactivity is decisive not only for the automaticity of the heart but also for a number of other functions, such as concern the vascular endothelium, the irritability of muscles, and other phenomena. Meanwhile, the possibility of insidious quackery based on these observations and hypotheses must be cautiously guarded against. A little knowledge is a dangerous thing — especially in the hands of an unscrupulous faker in medicine.

GENESIS OF THE EPIGASTRIC PAIN IN ULCER

Although the sensation of pain furnishes data of first importance to those who are concerned with the management of disease, the physiology and pathology of the pain sense have not yet received the careful scientific evaluation and analysis that their significance in medicine warrants. It has been said that for the evolution of the race as well as for the preservation of the individual, the pain sense is all important because it affords an expression in consciousness of the existence of nocuous factors liable to do damage to the tissues of the body. It seems strange that pain may result from changes in organs that are devoid of ordinary sensibility. Surgical manipulation of the intestine, for example, is not usually attended with any annoying sensation; yet a strong contraction of the muscular wall or increased distention of the intestine will evoke a griping pain. The ureters and other ducts in the body rarely give any evidence of themselves in our sensations until they are firmly contracted on some obstruction contained within their lumen.

Gastric and duodenal ulcers afford instances in which pain sensations give indications of peculiar value to the diagnostician. The pain is so characteristic in coming as a rule when the stomach is empty and in being relieved by the ingestion of food that the incidence of the distress may give a clue to its differentiation from the pain of gastric cancer. Its periodicity also has been noted in contrast with the diffuse sensation commonly designated as gastralgia. The painful feeling awakened by the contact of an irritant like acid with an abraded surface of the skin or mucous membranes is sufficiently familiar in everyday experience to have suggested the view that the pains of gastric and duodenal ulcers are associated with acid irritation of hyperexcitable nerve endings or exposed nerve fibers in the ulcer area. This is the most widely current hypothesis of the genesis of certain epigastric pains.

---

[5] Burget, G. E.: Am. Jour. Physiol., 1917, **44**, 492.

[6] Zwaardemaker, H.: Aequiradio-Activity, Am. Jour. Physiol., 1918, **45**, 147.

[7] Campbell, N. R., and Wood: Proc. Cambridge Phil. Soc., 1906-1908, **14**, 15.

In harmony with the theory just suggested is the frequent occurrence of the so-called gastric hyperacidity in cases of gastric and duodenal ulcer, and the temporary alleviation of the ulcer pain by food and alkalis. In a recent study of the origin of the epigastric pains in cases of gastric and duodenal ulcer, Carlson[1] has pointed out certain facts that are not readily explained by the "acid corrosion" theory. For example, gastric ulcer with or without clinical hyperacidity may be present without pain. Gastric ulcer and ulcer pain may be associated with normal acidity, and even with hypacidity. The pains of gastric ulcer may be present and be temporarily relieved by food or alkalis, even though the stomach contents are alkaline. The introduction of acids (0.5 per cent. of hydrochloric acid) into the stomach does not, or at least not invariably, induce or augment the ulcer pains in gastric ulcer patients. The ulcer pains usually show a periodicity (being described as "gnawing" or "boring"), and the periods are too short to be explained by variations in the gastric acidity. An alternative hypothesis connects the pain with contractile phenomena of the stomach.

The association of periodic pangs of hunger with the coincident contractions of the empty stomach has become an accepted fact in physiology. Carlson has reinvestigated the problem of distress in cases of well diagnosed ulcer by the use of graphic methods of recording gastric contractions associated with chemical analysis of the gastric contents. He has established anew the frequent lack of parallelism between ulcer pains and gastric acidity. Indeed, within certain limits the motility of the stomach is independent of the chemical reaction of the stomach contents.

As the result of his studies, Carlson states that all the evidence now points to the fact that the pains of gastric and duodenal ulcers are contraction pains arising either in the stomach or in the pylorus and upper part of the duodenum. In the case of the stomach the contractions are usually not stronger than those of normal digestion peristalsis of the filled or the hunger tonus rhythm of the empty stomach. This points clearly to a condition of hyperexcitability of the gastric pain nerves in the ulcer patients experiencing the typical ulcer pains. Since, Carlson adds, the ulcer pains are due to tension of excessive contractions or of normal contractions on hyperexcitable pain nerves, it is evident that pathologic states other than ulcer, inducing such hyperexcitability or hypermotility, will cause symptoms of gastric ulcer pains practically identical with those of ulcer, as appears to be the case in many instances of appendicitis, cholecystitis and achylia.

These findings regarding the genesis of gastric ulcer pains have been corroborated in carefully diagnosed clinical cases observed at the Presbyterian Hospital in Chicago by Hardt.[2] He, too, noted that the ulcer pains may be absent in the presence of high acidity, and present in the absence of acid in the stomach. Hardt states that any active process, such as an ulcer or carcinoma, which produces a hyperirritable condition may result in pain; but the pains are intermittent and, as may now be suspected, they are synchronous with the contractions of the stomach, pylorus or duodenum. Furthermore, they bear no relation to the degree of acidity that is either naturally present or induced by feeding.

It follows from these associations of ulcer pains with the tonus and contractions of the body of the stomach that any measure which inhibits or decreases the gastric tonus (ingestion of food, water, alkalis or acids, passing of the stomach tube, etc.) will temporarily ease the pains, irrespective of the chemical reaction of the stomach content. Continuous epigastric pain in ulcer cases may thus be attributable to a persistent hypertonus of the stomach or pylorus. If we accept this analysis of a much debated problem, it is easy to accept Carlson's further reminder that the elimination of the ulcer pain is no criterion of healing of the ulcer. This criterion, he bluntly states, satisfies only the ignorant patient and the careless clinician.

PEANUTS AS FOOD

"Nuts in general," says Sherman,[3] "being rich in both protein and fat, are comparable with meats as food and may be used interchangeably with meat in the diet; in fact, they are being so used to an increasing extent. With the constant tendency toward higher cost of meat, and with growing knowledge of nut culture, we may look for a much larger use of nuts as 'meat substitutes.' Even at the present prices the economy of nuts both as sources of energy and of protein will doubtless be surprising to many who have not previously compared the composition and cost of typical articles of these groups." The exigencies of war time have prepared our population to accept or try radical alterations in their dietary customs to a degree that would scarcely have been expected during normal periods of peace. The effort to obtain calories at a low cost is, however, attended with certain possibilities of danger to nutrition if energy value is made the sole criterion of our food propaganda. The importance of taking into account other equally indispensable factors in the diet has often been emphasized in The Journal. Therefore we can only urge that every pronounced dietary innovation shall be investigated with due appreciation of all the requirements that the newer study of nutrition has established for an adequate ration.

---

[1] Carlson, A. J.: Contributions to the Physiology of the Stomach, XLIV, The Origin of the Epigastric Pains in Cases of Gastric and Duodenal Ulcer, Am. Jour. Physiol., 1917, 45, 81.

[2] Hardt, Leo L. J.: Pain in the Active Pathologic Processes in Stomach or Duodenum, The Journal A. M. A., this issue, p. 837.

[3] Sherman, H. C.: Food Products, New York, 1914, p. 345.

This has recently been done in a most satisfactory way for the peanut, a food which has steadily grown in popularity so that it seems about to be transferred from the category of a delicacy to that of a more staple item in the diet. The peanut enters into the preparation of most of the vegetable "meat substitutes" long warmly advocated by the vegetarians and now made more conspicuous by the governmental admonition to "eat less meat"; and peanut "butters" or "pastes" are widely used. Today the value of the peanut crop, which is divided between the production of the promising peanut oil, peanut cake for animal fodder, and roasted peanuts for human food, has begun to total many millions of dollars. At the University of Wisconsin, Daniels and Loughlin[4] have demonstrated by feeding experiments on animals that the peanut can supply adequate protein, that is, all of the essential amino acids, in sufficient proportions for growth and reproduction. It also can furnish an abundance of the water-soluble vitamin. The food as used in the human dietary does not, however, yield the growth-promoting fat-soluble vitamin, which has come to be recognized as a remarkable constituent of butter fat and egg fat; nor are the inorganic constituents adequate in quality to supply sufficient calcium and certain elements. Of course, the peanut is not used as a sole source of nutrients for man; nevertheless, the delineation of its physiologic value enables one to define more intelligently the place which it can take in the ration. Daniels and Loughlin foresee an increasing usefulness for the peanut, now that its real value has been scientifically established. When we consider the broad areas, they say, which may be adapted for growing the crop, and the fact that our food supply tends toward a wider use of the seeds of plants, it seems appropriate to expect that the peanut, when rightly supplemented, will form a staple article of the human dietary. Like the soy bean, which has lately come into new prominence in American homes, the peanut needs only to have added suitable inorganic salts and the fat-soluble accessory to make it a complete food.

SUGAR AND WORKING POWER

There can be no longer any doubt that the great function of carbohydrate food is to afford energy. This does not mean that other types of foodstuffs are useless in this respect; on the contrary, it is easy to foresee and to devise conditions in which fats and proteins are responsible for the energy metabolism. In starvation, for example, carbohydrate is not directly available; but under normal conditions of diet, approximately two thirds of the entire calorific intake is derived from carbohydrates by the average person with no extreme eccentricities in his eating habits. Half a century ago, physiologists were inclined to attribute a superior value to proteins in the performance of muscle work, the supreme manifestation of the transformation of energy in the body. Today it need scarcely be argued that, so long as work is not excessive and does not lead to pathologic consequences, with an abundance of all types of foodstuffs in the diet, there is practically no change in the nitrogen output, i. e., there is no evidence of protein disintegration from it.

Anderson and Lusk[1] have just furnished even more direct evidence of the superior value of carbohydrate in muscular activity. In calorimetric observations on animals, they found that the quantity of energy required to move a unit of body substance a definite distance through space is a constant factor that is independent of the condition of the body. It matters not whether the subject is in the best nutritive condition or has lost as much as one fifth of his weight through fasting: the quantity of energy required to do a definite amount of work remains the same.

It is known that the metabolites of the foodstuffs, but notably of proteins, induce an extra heat production in the body which is commonly described as their specific dynamic action. They stimulate metabolism independently of the use to which they are put in the organism. Anderson and Lusk have found that whereas on a meat or high protein diet the increment of energy required to perform a definite amount of mechanical work is added to the specific dynamic quota that meat ingestion contributes to the basal metabolism, the metabolites of glucose induce no such extra heat production. When mechanical work is accomplished during the hours following a large ingestion of glucose, the metabolism rises to about the same height as when the same amount of work is done during a period when the gastro-intestinal tract is free from food. There is no "waste" of energy in useless heat production. This economy of carbohydrates for the accomplishment of work deserves to be emphasized at a time when food fuel is in great demand and the superior value of meat is still lauded. Whatever significance meat may have as a highly palatable form of protein food must not be confused with the discarded claims of its superiority as a source of energy for our working machine.

---

[4] Daniels, Amy L., and Loughlin, Rosemary: Feeding Experiments with Peanuts, Jour. Biol. Chem., 1918, **33**, 295.

[1] Anderson, R. J., and Lusk, Graham: Animal Calorimetry: The Interrelation Between Diet and Body Condition, and the Energy Production During Mechanical Work, Jour. Biol. Chem., 1917, **32**, 421.

Current Comment

THE GROUND GLASS OBSESSION

Rumors continue to appear to the effect that ground glass has been found in food and that an investigation is to be made by the federal government. During the last two or three years we have passed through a whole series of such nation-wide "scares." Our readers may remember the vogue of infected court-plaster, of the insertion of various organisms into bandages and dressings, of the finding of numerous alleged bombs in different localities. Today ground glass holds the stage. Just why any intelligent spy, or even an unintelligent German diplomat, should choose ground glass to kill off a community is problematical. Neither has any one explained how enemy sympathizers are going to avoid the alleged manipulated foodstuffs. In works on forensic medicine and toxicology ground glass is mentioned as a mechanical poison. When the glass is coarsely ground it produces mechanical lesions of the lining of the gastro-intestinal canal which become infected. Ultimately the condition resembles a catarrhal and hemorrhagic inflammation. Both may result from perforation of the stomach or bowel, or from infection of the wounds and extension of the inflammation. A meal of very finely ground glass is regarded by some as harmless, and it has been reported that it is even used as a remedy among the peasants of eastern Europe. The concealing of ground glass in flour or in sugar, the two substances most commonly mentioned in the newspapers — any amateur psychologist can figure out why — would necessitate that it be ground very fine. These stories may have a certain value in keeping the public alive to the dangers of the spy peril. On the other hand, they stimulate cranks and other unbalanced persons to "go and do likewise," thus lending a substantial basis to the original imaginative stories.

SOME ODDITIES IN FOODS

War time needs or threatened deprivations of food have served in many unexpected ways to elicit knowledge of hitherto little used products that may be incorporated into the dietary. The soy bean has been brought into a new prominence in this country, where it was until recently for the most part used only as a food for diabetics. The dasheen has become more familiar, though its deserts are still far from being appreciated. The admonition to eat more fish has tended to increase the names, if not the actual varieties, of this class of foods; thus the grayfish has taken its place alongside the bluefish and whitefish — and the colors of the rainbow are not yet exhausted in providing an attractive new nomenclature for old species. A prominent American scientist has brought new notoriety to the whale by serving its flesh as a delicacy to his colleagues at a widely heralded dinner in New York. A well known surgeon has called attention in public print to the "wicked waste of good meat" in the thousands of tons of the flesh of seals that are left unutilized by the sealing fleet in the North. The animals that are taken at this time of year are the young of the harp seal, which are "living on their mother's milk in the killing season, and are tender and excellent for food purposes." Perhaps a surprise even greater has been prepared for us by the Bureau of Biological Survey in classing the fur-bearing muskrat as a source of human food. The government's biologist, Dr. Lantz,[1] frankly admits that one writer condemns the musky flavor of the muskrat as something that "would keep any but the starving from eating it." But in view of the ancient admonition *de gustibus non est disputandum,* and the assurance that a number of persons have likened the flavor of the muskrat to that of the famous terrapin of the Chesapeake, we ought not to conceal the new food possibilities from American epicures, if there are any such individuals left. At any rate, Lantz assures us that in the retail markets of Philadelphia, Baltimore, Wilmington and other cities, the animals in question, trapped primarily for their pelt, are sold as "marsh rabbits," although no attempt is made to conceal the fact that they are muskrats.

THE CHLORID CONTENT OF THE BLOOD PLASMA

It has been emphasized of late, as never before, that the proper performance of physiologic functions in health is conditioned by "the accurate adjustment and preservation of temperature, molecular concentration and neutrality." The extent to which this is normally accomplished is strikingly illustrated by the composition of the blood, which is regulated to a nicety so as to present a minimum of variation under widely varying conditions. The kidneys, the respiratory apparatus and the tissues serve, as the case may be, to facilitate or prevent the withdrawal of blood constituents to the end that fixity of composition in the circulating medium may be attained. The content of protein is little altered in health; the sugar and non-nitrogenous components tend to approach a stationary level; the hydrogen ion concentration is singularly constant, and the alkali reserve is continually being adjusted toward a normal standard. The same tendency has been exhibited anew in the recent studies of Austin and Jonas[2] of the William Pepper Laboratory of Clinical Medicine, at the University of Pennsylvania, on the effects of diet on the plasma chlorid and chlorid excretion. They showed that it is not possible to raise the level of the plasma chlorids other than in transient manner by a prolonged regimen on a high chlorid diet, or to lower the plasma chlorids below the normal level even by a prolonged regimen on a very low chlorid diet. The kidneys, in health, evidently have a surprisingly constant threshold for the excretion of substances contained in the blood. This applies, for example, to sugar and to alkalis or acids. The new experiments of Austin and Jonas verify the evidence of McLean[3] for the constancy of the chlorid threshold, showing that a definite rise in plasma chlorids provokes a definite increment in the urinary excretion. In pathologic cases, however, one notes in the case of chlorid elimination what is seen to be true of other regulatory manifestations, namely, an occasional failure. In the pathologic kidney there may be either an alteration in the threshold or a disturbance in the degree of renal response to increments in the plasma chlorids above the threshold.

---

[1] Lantz, D. E.: The Muskrat as a Fur Bearer, with Notes on Its Use as Food, Farmers' Bull. 869, U. S. Dept. Agric., September, 1917.

[2] Austin, J. H., and Jonas, L.: Effects of Diet on the Plasma Chlorides and Chloride Excretion in the Dog, Jour. Biol. Chem., 1918, 33, 91.

THE HUNGER SENSATION IN FASTING

In numerous descriptions of the experiences of man in the course of more or less prolonged fasting, one meets the repeated assertion that after a brief initial period little or no hunger whatever is felt. Since it has been well established that the sensation of hunger is induced by a certain type of tonic and peristaltic contractions of the empty or nearly empty stomach,[4] it must be assumed either that these contractions are abolished as a fast proceeds or that the sensations are decidedly modified. Professor Carlson of the University of Chicago, to whom we owe so many fundamental researches in this field, has lately had an exceptional opportunity to investigate these questions.[5] As the result of careful observations on man during prolonged intentional starvation, Carlson found that during the fifteen days' complete fast and the subsequent eight days of abstinence from food with daily ingestion of cotton fiber, the gastric hunger contractions of his subjects continued with practically normal rhythm and intensity; but the subjective sensations induced by the gastric contractions appeared to be somewhat weakened and tinged with an element of general epigastric distress or sick stomach. The view that hunger mechanism fails early in prolonged fasting is therefore not tenable as a general law. This is of more than passing significance to the physician, who has at times to reckon with the possibility of hunger sensations in enforced inanition. In tentative explanation of the current beliefs that he has controverted, Carlson says:

> Most of the evidence tending to show suppression of hunger after a few days' fasting consists of the statements of professional fasters or persons fasting to improve their health. Many of these persons have a fixed faith in fasting as a cure-all; hence they tend to ignore or deny most discomforts of starvation. The professional faster may do so in the spirit of bravado, and where the elements of faith or bravado are not in evidence the statement of the fasting person is observed by the usual confusion of the sensations of the pangs of hunger with the appetite for food. In prolonged fasting the latter is interfered with in many persons by a persistent bad taste in the mouth.

Medical Mobilization and the War

Amendment to Owen Bill

Senator Owen has proposed the following amendment to his bill asking increased rank for members of the medical department of the Army. "Nothing in this act shall be construed to deprive any officer of the Medical Corps of the United States Army of a commission he now holds."

Bill to Furnish Uniforms of Officers

Senate Bill 3433, requiring the government to furnish uniforms of officers of the Army, has passed the Senate and is now resting in the Committee of Military Affairs of the House. This bill provides that all uniforms, accoutrements and equipment required for any officer of the military forces of the United States shall be furnished and issued to such officers by the government at cost price under regulations to be prescribed by the Secretary of War, and that they shall be similar in quality and price for all officers of the same rank.

New Assignment to Provost-Marshal-General's Office

A few weeks ago we announced that Major Frank Billings had been assigned to the Provost-Marshal-General's Office, to have charge of the medical work connected with the selective service. Major Billings has now been transferred to the Surgeon-General's Office, to act as director of the Division of Reconstruction in that office. The Provost-Marshal-General requested the Surgeon-General to commission Dr. Hubert Work, Pueblo, Colo., and to assign him to the Provost-Marshal-General's Office to take the place made vacant by Major Billings. This has been done and Dr. Work is now in Washington.

Personnel of the Medical Department

For the week ending March 15, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 799, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 177 majors, 2 captains and 451 lieutenants.

MEDICAL RESERVE CORPS: 18,037, including 1,085 majors, 4,163 captains and 13,789 lieutenants. On active duty: 14,655, including 937 majors, 3,579 captains and 10,139 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,242, including 11 lieutenant-colonels, 257 majors, 151 captains and 825 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 76, including 4 brigadier-generals, 12 colonels, 55 lieutenant-colonels and 5 majors.

The DENTAL CORPS, 210; DENTAL RESERVE CORPS, 5,124, of whom 1,337 are on active duty; DENTAL CORPS, N. G., 261; VETERINARY CORPS, 24; VETERINARY RESERVE CORPS, 1,421, of whom 794 are on active duty; VETERINARY CORPS, N. G., 57; VETERINARY CORPS, N. A., 297; SANITARY CORPS, 947, and AMBULANCE SERVICE, 142 constitute the remainder of the commissioned personnel.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 8, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):

All Troops	1,412.8
National Guard Camps	1,103.6
National Army Camps	1,731.2
Regular Army	1,221.8

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	47.5
National Guard Camps	42.1
National Army Camps	54.2
Regular Army	42.0

3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):

All Troops	6.6
National Guard Camps	6.2
National Army Camps	6.0
Regular Army	7.5

---

[3] McLean, F. C.: The Numerical Laws Governing the Rate of Excretion of Urea and Chlorides in Man, Jour. Exper. Med., 1915, 22, 212.

[4] Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916.

[5] Carlson, A. J.: Contributions to the Physiology of the Stomach, XLV, Hunger, Appetite and Gastric Juice Secretion in Man During Prolonged Fasting (Fifteen Days), Am. Jour. Physiol., 1918, 45, 120.

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 8, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth..........	10	..	..	17	4	..	...	1	537.1	23.7
Hancock..........	4	..	1	15	9	..	2	3	437.1	25.1
McClellan..........	...	..	..	23	10	..	2	3	728.0	30.3
Sevier..........	14	..	1	23	1	3	2	2	1,756.1	70.5
Wheeler..........	13	1	3	35	...	1	...	4	1,280.2	42.2
Logan..........	4	..	2	146	22	2	1	3	1,586.0	44.0
Cody..........	11	..	..	2	1	..	...	6	578.5	35.2
Doniphan..........	5	..	..	18	...	..	3	5	1,702.3	46.9
Bowie..........	15	..	1	52	...	2	...	6	1,717.4	58.0
Sheridan..........	2	..	..	7	1	..	2	0	544.7	34.2
Shelby..........	4	1	..	24	1	1	...	5	1,286.1	52.9
Beauregard..........	3	..	2	18	1	3	...	3	1,299.4	54.5
Kearny..........	2	..	..	2	2	..	7	1	1,160.6	46.7
Devens..........	12	..	..	63	10	..	...	4	1,377.1	39.4
Upton..........	21	..	..	40	1	..	3	6	1,140.8	28.7
Dix..........	5	..	..	82	5	1	10	1	2,365.4	51.4
Meade..........	8	..	..	23	19	1	13	3	860.7	35.8
Lee..........	15	..	1	116	9	1	...	4	1,523.5	56.7
Jackson..........	6	..	..	302	6	..	...	3	2,005.0	59.3
Gordon..........	6	..	..	178	8	2	...	2	1,626.2	37.6
Sherman..........	12	..	..	47	90	1	29	4	1,745.0	61.5
Taylor..........	15	..	..	41	23	..	...	1	1,725.7	68.2
Custer..........	...	..	..	14	6	2	4	3	990.9	45.7
Grant..........	11	..	..	28	20	..	5	2	1,029.3	30.1
Pike..........	24	..	1	127	19	..	9	4	3,084.1	84.1
Dodge..........	19	..	..	121	52	..	7	3	1,744.1	48.1
Funston..........	10	1	..	45	...	3	4	5	2,017.2	82.8
Travis..........	29	1	3	52	23	1	2	2	2,975.7	68.9
Lewis..........	9	..	..	17	44	..	35	6	1,502.2	78.6
N. E. Department....	...	..	..	14	7	..	...	1	1,177.6	30.3
Eastern Dept.	11	..	..	29	18	1	1	3	843.6	26.6
S. E. Department....	9	..	4	25	17	2	4	6	1,015.2	48.7
Southern Dept.	16	..	..	71	55	2	14	10	1,066.6	39.9
Central Dept.	6	..	..	22	21	..	7	4	1,487.9	43.2
Western Dept.	9	..	..	30	39	..	5	9	1,136.2	32.4
Aviation, S. C.	21	..	..	91	133	3	12	17	1,381.2	45.4
Camp Greene........	8	..	1	36	15	4	6	2	864.7	33.5
Camp Fremont......	6	..	1	39	15	..	...	0	1,099.1	43.3
El Paso..........	...	..	..	5	12	..	1	0	1,012.3	6.5
Fort Slocum.........	2	..	..	11	8	..	...	0	1,840.0	39.1
Columbus Bks.	1	..	..	16	1	..	3	0	1,876.5	51.3
Fort Thomas.........	...	..	..	1	...	..	...	0	1,108.8	53.0
Jefferson Bks.	1	..	..	10	5	..	13	5	2,272.3	117.2
Fort Logan..........	1	..	..	1	22	..	5	1	2,496.6	70.8
Fort McDowell.......	...	..	..	5	5	..	1	0	1,132.1	53.7
D.B.Ft.Leavenworth	...	..	..	....	...	..	...	0	1,692.4	35.2
D.B. Alcatraz........	...	..	..	....	...	..	...	0	852.5	13.1
Aberdeen, P. G.	...	..	..	....	1	..	1	1	1,368.4	29.2
A. A. Humphreys....	...	..	..	9	...	..	...	0	1,273.5	12.2
J. E. Johnston.......	...	..	..	27	4	1	1	1	940.1	33.5
Edgewood..........	...	..	..	....	...	1	...	0	1,642.1	140.3
Camp Merritt........	16	..	..	65	16	1	26	5	1,944.8	74.2
Camp Stuart.........	9	..	..	11	6	..	1	4	1,694.7	54.2
West Point, N. Y. ...	1	..	..	1	7	..	...	0	1,053.8	17.4
General Hosp. No. 1.	...	..	..	....	...	..	...	1	..	
N. G. Departments...	4	..	..	12	33	..	1	2		
N. A. Departments...	25	4	1	181	50	..	14	3		
Total (all troops).	435	8	22	2,390	877	39	256	171	1,412.2	47.5

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Mar. 8, 1918	Regulars in U. S., Week Ending Mar. 8, 1918	National Guard, All Camps, Week Ending Mar. 8, 1918	National Army, All Camps, Week Ending Mar. 8, 1918	Expeditionary Forces, Week Ending Feb. 28, 1918
Pneumonia..........	18.2	15.1	13.5	22.8	26.0
Dysentery..........	0.3	0.0	0.3	0.2	0.2
Malaria..........	100.2	67.2	1.5	0.5	0.0
Venereal..........	100.2	67.2	59.1	146.3	44.2
Paratyphoid..........	0.0	0.0	0.0	0.0	0.0
Typhoid..........	0.0	0.0	0.0	0.0	0.4
Measles..........	36.7	52.7	8.0	37.8	13.7
Meningitis..........	1.6	1.9	1.8	1.3	3.0
Scarlet fever..........	10.7	13.1	2.9	13.6	13.4

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

Capt. Charles Griffith, M. R. C., has brought his family to Hampton Terrace Annex, North Augusta.

The following first lieutenants of the Medical Corps have been promoted to captains as the result of their service and examinations: Bixby, Allen, Harper, Hemphill, Fisher, Lewis, Ross, Steinmetz, Toland, Stahr, Washburne.

The entire Twenty-Eighth Division gave a very creditable review before Secretary of State Lansing, Saturday, March 8.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

March 18, 1918.

ARTICLES OF WAR

Through ignorance of the proper numbering of the Articles of War, in referring to the court martial of Major Milton Board, and relying on a press account of it, I stated in the last issue of The Journal that Major Board was being tried for a violation of the Eighty-Fifth Article of War. The Eighty-Fifth Article of War refers to drunkenness and conduct unbecoming an officer, and as we know Major Board has never drunk intoxicants I am glad to state his trial was for violation of the Ninety-Sixth Article of War, the charges being that he wrongfully dismissed a patient from the hospital who was at the point of death. When there is not any other Article of War an officer can be court martialed under, the Ninety-Sixth Article covering them all. The trial of Major Board was concluded last week, and the result will probably not be known for several weeks, as it must be reviewed by the commanding general and approved by the War Department before an announcement will be made.

EXAMINATION OF FOOD

Arrangements have been made for the proper chemical examination of foods suspected of containing material deleterious to the health at Camp Zachary Taylor and mess officers may send suspected food to the Bureau of Chemistry, U. S. Department of Agriculture, at Cincinnati for analysis.

BASE HOSPITAL UNIT NO. 40

Miss Elizabeth Bogle, chief nurse of the Good Samaritan Base Hospital, Unit No. 40, has received a telegram from the War Department that all of the one hundred nurses of the unit would be assigned to duty within the next ten days at some of the army cantonments. The nurses will not go in a body, but will be assigned in small numbers to duty in the various cantonments. This is to be a sort of preliminary training, preparing them to join the enlisted personnel which is now training at Camp Zachary Taylor and which will leave soon for overseas. All of the nurses of this unit will be required to furnish recommendations from influential citizens concerning their loyalty to the United States.

Dr. David Barrow, Major, M. R. C., is in charge of this unit, and Capt. Virgil Simpson, M. R. C., is in charge of the enlisted personnel which is at Camp Zachary Taylor.

ONLY DEATH IN TEN DAYS

Only one death in ten days is the record at Camp Zachary Taylor. Physicians say that this is an indication that with pretty weather hardly a healthier site in the country could be found than Camp Zachary Taylor. Even in civil life many deaths would have occurred among 30,000 or more men, but the death rate of Camp Zachary Taylor, even with the most severe winter in the history of the city, was not large.

Capt. Matthew Neil, Sanitary Corps, has been appointed division medical supply officer and will report for duty to take up his new work in the office of the division surgeon.

FIRST LIEUTENANTS OF THE MEDICAL RESERVE CORPS RECOMMENDED FOR PROMOTION AS CAPTAINS, MARCH 14, 1918

JOHN FRANKLIN ALLEN, Omaha; NELSON KINGSBURY, Newark, N. J.; MORGAN LELAND CLINT, Meadville, Mo.; LAFAYETTE THOMAS COX, Napoleon, Ind; MODIE EZRA CUNNINGHAM, Birmingham, Ala.; RAYMOND CANFIELD DODD, Glen Ridge, N. J.; EDWIN CLARENCE FUNSCH, St. Louis; CARL GOEHRING, Pittsburgh; PURSIFOR FRAZIER GUIE, Manheim, Pa.; ROBERT ROY HAMPTON, Salt Lake City; CARLETON GALE KELSEY, Hinckley, Minn.; LAUREN NORTON LINDENBERGER, Cincinnati; CHARLES BAILEY REED, Newburgh, N. Y.; ADDISON MAY ROTHROCK, Reading, Pa.; HARRY CHRISTIAN SCHMEISSER, New York City; DENNIS EDWARD SINGLETON, Clarence, Mo.; WALTER LEO SMALL, Kansas City, Mo.; RALPH WITT STALEY, Cincinnati; CLYDE KRESS STARTZMAN, Bellefontaine, Ohio; JOHN WESLEY TIPPIE, Cleveland.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Fort Sam Houston, Texas, for duty, from Newport News, Cols. CHARLES LYNCH, JERE B. CLAYTON, from Fort Bliss Lieut. JAMES S. SIMMONS.

To Newport News, Va., for duty, from Fort Sam Houston, Texas, Col. CHARLES LYNCH. For inspection and on completion *to his proper station,* Col. PEARCE BAILEY. Base hospital, from Fishers Island, N. Y., Lieut.-Col. WILLIAM S. TERRIBERRY.

To New York City, for duty and on completion *to their proper stations,* Col. ROBERT E. NOBLE, Lieut. PAUL H. McNABB.

To Washington, D. C., George Washington University Medical School, as instructor, Col. LOUIS A. LAGARDE. For consultation and on completion *to his proper station*, from Allentown, Col. ELBERT E. PERSONS; from Camp Dix, Lieut.-Col. GEORGE M. EKWURSEL; from Camp Sherman, Lieut.-Col. WALLACE DE WITT; from Camp Upton, Lieut.-Col. CHARLES R. REYNOLDS; from Asheville, N. C., Lieut.-Col. WILLIAM H. SMITH. For duty, from Fort Oglethorpe, Lieut.-Col. GEORGE H. SCOTT; from Surgeon-General's Office, Major JOHN O. SKINNER.

To Allentown, Pa., Concentration Camp, from Army Medical School, Lieut.-Col. HAROLD W. JONES; from Fort McHenry, Major CLARENCE R. BELL.

To Camp Cody, Deming, N. M., *Camp Kearny*, Linda Vista, Calif.; *Balloon School*, Los Angeles, Calif., *Camp Fremont*, Palo Alto, Calif., *Letterman General Hospital, Fort McDowell and U. S. Disciplinary Barracks*, Benecia, Calif., *Vancouver, Wash.*, *Camp Lewis*, American Lake, Wash., and *Fort Douglas, Utah*, for inspection and on completion *to his proper station*, Lieut.-Col. FRANK W. WEED.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Dodge, Major CLARENCE E. FRONK.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Major THOMAS J. LEARY. For duty, from Camp Jackson, Major JAMES F. JOHNSTON.

To Camp Logan, Houston, Texas, for duty, from Camp Logan, Major HENRY P. CARTER, Lieut. PERCY K. TELFORD.

To Camp Sevier, Greenville, S. C., for temporary duty, from Camp Sevier, Majors BAXTER R. HUNTER, JAMES E. POORE; Lieut. WILLIAM C. STONE. For temporary duty and on completion *to his proper station*, from Camp Wadsworth, Lieut. HARRY J. WORTHING.

To Camp [illegible], for duty, from Camp Zachary Ta[illegible], from Camp Dix, Lieut. VAL E. [illegible] omas, Lieut. PAUL B. HAWLEY.

To Camp Wheeler, Macon Ga., for duty and on completion *to his proper station*, from Camp Sheridan, Major CHARLES W. STONE. For temporary duty, from Camp Devens, Lieut. OTTIS L. GRAHAM.

To Camp Greene, Charlotte, N. C., for duty, from Camp Logan, Lieuts. SEYMOUR C. SCHWARTZ, WARD S. WELLS, JOHN R. WHISENANT.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, from Fort McPherson, Ga., Lieut. JOHN R. DEVELLING.

To Corpus Christi, Texas, for temporary duty, from Camp Dodge, Lieut. FRANK S. MATLACK.

Lieut. WALTER F. TOLSON, who has passed the preliminary examination for appointment in the Medical Corps, will proceed *to Army Medical School* for instruction.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. SETH H. SAVAGE.

The resignations of Major EUGENE SWAYNE, Capt. CHARLES E. WILLIAMS, Lieuts. WILLIAM W. MAXWELL, and C. I. TRULINGER, are accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School for instruction, Lieut. MONTE LE ROY MOORER, Mt. Vernon.

To Camp Lee, Petersburg, Va., base hospital, from Camp Dix, Lieut. BRYANT B. EDWARDS, Union Springs.

To Camp Travis, Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. ROBERT H. HOWARD, Tuskegee.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieuts. HUGH W. HILL, Carrollton; WILLIAM R. ROUSSEAU, Hunterville.

To Fort Oglethorpe for instruction, from Camp McClellan, Capt. JOHN W. HOOPER, Roanoke. For instruction, Lieut. OLLIE P. BEARD, Birmingham.

To Fort Riley for instruction, from Camp Cody, Lieut. LLEWELLYN H. LEDBETTER, Goodwater.

To Markleton, Pa., for duty, from Camp Beauregard, Lieut. CLIFFORD V. MAYHALL, Elkmont.

To San Juan, Porto Rico, base hospital, Lieut. SAMUEL W. HORN, Birmingham.

Honorably discharged Lieut. RICHARD [illegible] McCANN, Seale. On account of physical [illegible] entrance into the service, Lieut. WADE H. [illegible]

Resignations of [illegible] RCHER, Roanoke, and ROLAND C. EVANS, Sheffield, accepted.

Arizona

To Fort Thomas, Ky., for duty, from Fort George Wright, Major RALPH W. NEWTON, Yuma.

To Southern Department, Lieuts. LEE H. CURRAN, Oraibi; FRANCIS R. CARTNELL, Seligman.

To Washington, D. C., Aviation Section, Signal Corps, Capt. FREDERICK T. WRIGHT, Douglas.

Arkansas

To Camp Fremont, Palo Alto, Calif., for duty, from Presidio, Lieut. UREY G. DAVIS, Blytheville.

To Fort Oglethorpe for instruction, Lieut. MAURICE F. LAUTMAN, Hot Springs; from Camp Pike, Lieuts. HORACE W. GRAVES, Elm Spring; ISAAC S. BUTLER, Marshall.

To Fort Riley, for instruction, Lieuts. ERASMUS S. BAKER, Paragould, THERON E. FULLER, Texarkana.

To Rockefeller Institute for instruction and on completion *to Camp Devens*, Ayer, Mass., base hospital, from Camp Devens, Lieut. MAC McLENDON, Marianna.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. HUGH C. BROOKE, Casa; BOULANGER GWALTNEY, Haskell.

Resignation of Lieut. ALBERT W. RYE, London, accepted.

California

To Camp Beauregard, Alexandria, La., base hospital, Major DONALD J. FRICK, Los Angeles.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. WALTER M. HOLLORAN, GEORGE F. SCHENCK, Los Angeles; ROY F. RUTH, Upland.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. LASHER HART, Los Angeles.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Barry, Major JOSEPH L. BELL, Fort Barry; from Presidio, Major HARRY S. MOORE, San Francisco; Capt. LEMUEL A. ANTHONY, Novato; from Fort MacArthur, Capt. WALTER O. HOWELL, San Francisco; from Fort Rosecrans, Capt. ALFRED H. BYARS, San Diego; from Western Department, Capt. DAVID B. FIELDS, Weaverville.

To Camp Lee, Petersburg, Va., from Boston, Capt. ALBERT M. MEADS, Oakland.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. LEO. V. ROSENTHAL, Duarte.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. WILLIAM J. HOSFORD, Santa Cruz.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. GEO. H. TREVELYAN, Riverside.

To Fort McDowell, Calif., Lieut. JOSEPH H. D. ROGER, San Francisco.

To Fort Riley, Lieut. WALLACE DODGE, Los Angeles. For instruction, Lieut. JOHN T. KERGAN, Oakland; FRANK W. H. TAYLOR, San Diego, from Camp Kearny, Lieut. GEORGE L. A. HAMILTON, Los Angeles.

To Fort Sam Houston, Texas, for duty, from Camp Bowie, Major JAMES R. MOORE, Los Angeles.

To Los Angeles, Calif., for duty and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Lieut. FREDERICK S. RAY, Los Angeles. For orthopedic instruction, Lieut. CHARLES A. WARMER, Ontario.

To Portland, Ore., for duty, from Fort Liscom, Capt. GEORGE NEWLOVE, Calepico.

To Western Department, Lieut. FRANK M. WHITING, Oroville.

To San Francisco, Calif., for instruction and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Capt. CHARLES A. WAYLAND, San Jose. On completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. OWEN M. HARRAH, Pasadena. On completion *to their proper stations* from Camp Kearny, Lieuts. JOHN G. NORMAN, Allegheny; TILTON E. TILLMAN, San Francisco. For duty, Lieuts. WILLIAM J. JACKSON, HERBERT R. D. SHOEMAKER, San Francisco.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. THOMPSON, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service. Capt. GEORGE H. RICHARDSON, San Francisco; Lieut. ELMER O. HOUSTON, Oakland.

Honorably discharged on account of physical disability existing prior to entrance into the service. Capt. WILLIAM R. SEVERSON, Los Angeles; Lieut. HERBERT P. NOTTAGE, Alameda.

Resignation of Lieut. CHARLES B. ALEXANDER, Alhambra, is accepted.

Colorado

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. HAROLD G. MACOMBER, Denver.

To Camp Kearny, Linda Vista, Calif., base hospital, Lieut. WILLIAM A. McGUGAN, Denver.

To Fort Riley for instruction, Lieut. SAMUEL B. McFARLAND, Longmont.

To Houston, Texas, Signal Corps Aviation School, Lieut. FRANK J. ERDLITZ, Pyrolite.

To Waco, Texas, Signal Corps Aviation Camp for duty, from Fort Riley, Lieut. CARLETON C. BOOTH, Cheyenne Wells.

To the inactive list, from Camp Doniphan, Lieut. RANULPH HUDSTON, Denver.

Resignation of Lieut. EDWIN D. BURKHARD, Delagua, accepted.

Connecticut

To Army Medical School, for instruction, Lieuts. WILLIAM C. McGUIRE, HERMAN R. WHITE, New Haven.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD A. BRACE, Ellington.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. JOHN F. SAGARINO, Hartford.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. RICHARD J. LAWTON, Terryville.

To Cape May, N. J., for duty, from Philadelphia, Capt. AUGUSTIN A. CRANE, Waterbury; from New York City, Lieut. DOUGLAS J. ROBERTS, Bridgeport.

T[illegible] for instruction, Capt. WILLIAM H. STOCKWE[illegible] OWEN J. GROARK, Bridgeport; WILLIAM S. [illegible]

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. WILLIAM E. SMITH, Stamford.

To Williamsbridge, N. Y., for duty, Lieut. RAYMOND J. QUINN, Waterbury.

Delaware

To Fort Oglethorpe, for instruction, Lieuts. JOHN H. MULLIN, VICTOR D. WASHBURN, Wilmington.

District of Columbia

To Allentown, Pa., Concentration Camp, base hospital, from Fort McHenry, Lieut. JOSEPH D. STOUT, Washington,

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Capt. EDGAR D. THOMPSON, Washington.

To Fort McHenry, Md., for duty, from Camp Gordon, Lieut. JOSEPH D. STOUT, Washington.

To Fort Oglethorpe for instruction, Capt. NAYNARD J. SIMMONS; Lieuts. A. MAGRUDER MACDONALD, WILLIAM H. NORTON, Washington. For duty, Lieut. WILLIAM P. O'DONNELL, Washington.

To report to the Surgeon-General of the Army, for duty, Capt. MILTON C. WINTERNITZ, Washington.

To Williamsbridge, N. Y., for temporary duty, on completion for instruction *to Rockefeller Institute*, Lieut. JAMES A. CAHILL, Jr., Washington.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. CHRISTOPHER J. MURPHY, Washington.

Florida

To Fort Riley for instruction, from Camp Kearny, Capt. RAYMOND B. McCLAWS, Tampa.

Georgia

To Atlanta, Ga., for duty, and on completion *to Camp Gordon*, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JAMES P. McGEE, Atlanta.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. STEWART McBRYDE, Darien.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN B. FITTS, Atlanta.

To Camp Jackson, Columbia, S. C., as commanding officer of base hospital, from Camp Jackson, Major STEWART R. ROBERTS, Atlanta.

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. GORDON BURNS, Douglas. For instruction, from Camp Lee, Lieut. LUCIUS F. WRIGHT, Atlanta; from Newport News, Lieut. WESLEY C. THOMAS, Macon.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps from Fort Oglethorpe, Lieuts. CARLTON J. WELLBORN, Blairsville; WALTER K. STEWART, Sylvester.

To New York City, neurosurgical school, Neurological Institute, for instruction, and on completion to Hoboken, N. J. for temporary duty, Capt. CHARLES M. REMSEN, Atlanta.

Idaho

To Camp Lewis, American Lake, Wash., base hospital, Lieuts. RAYMOND D. MACRAE, St. Mary's; JAMES MacP. McCOLL, Troy.

To Fort Riley for instruction, Lieut. VENANDO G. LOGAN, Rockland.

To Rockefeller Institute for instruction, and on completion to Camp *Doniphan*, Fort Sill, Okla., base hospital, from Fort Riley, Lieut. CLAUDE W. WILLIAMS, Taclide.

Illinois

To Army Medical School for instruction, Lieuts. ALFRED S. BAILEY, RUSSELL D. ROBINSON, Chicago; JOHN J. HOPKINS, Hindsboro, EDGAR E. POOS, Okawville.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. HERBERT B. HENKEL, Springfield.

To Brooklyn, N. Y., base hospital, Lieut. ARTHUR SPRENGER, Peoria; from Fort Riley, Lieut. EDWARD F. FOX, Chicago.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. ERIC BARTHOLOMEW, WILLIAM J. QUIGLEY, GEORGE W. SCUPHAM, Chicago; from Camp Bowie, Lieut. JESSE F. BOONE, Chicago.

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Capt. ROMNEY M. RITCHEY, Elgin; from Camp Cody, Lieut. WILLIAM P. DAVIDSON, Sullivan.

To Camp Custer, Battle Creek, Mich., base hospital, Lieuts. ELMER O. DAHL; ARTHUR M. EVANS, JOHN M. MITCHELL, FRANK M. WELDY, Chicago.

To Camp Fremont, Palo Alto, Calif., base hospital, from Fort Riley, Lieut. FRANK J. SCHICK, *Chicago.*

To Camp Grant, Rockford, Ill., base hospital, Capt. FRANCIS LANE, Chicago. Lieut. SAMUEL G. WINTER, Galesburg; from Fort Riley, Lieut. LEON NEWMAN, Chicago.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Riley, Lieut. WALTER S. MIX, Beardstown.

To Camp Kearny, Linda Vista, Calif., base hospital, from Jefferson Barracks; Capt. FRANK A. PALMER, Morris.

To Camp Lee, Petersburg, Va., base hospital, Lieuts. JOHN FAVILL, WILLIAM A. McQUIRE, CHARLES R. WILEY, Chicago.

To Camp Logan, Houston, Texas, as division psychiatrist, from San Antonio, Capt. THOMAS F. NEIL, East Moline.

To Camp MacArthur, Waco, Texas, base hospital, Lieuts. BERNARD BENKENDORF, CLIFFORD E. BERGIN; HENRY G. LAMPE, THOMAS P. O'CONNOR, PHILIP ROSENBLUM, Chicago; LESLIE D. DARNER, Granite City.

To Camp McClellan, Anniston, Ala., base hospital, Capt. WILLIAM T. DOWDALL, East St. Louis; Lieut. ADELBERT M. MOODY, Chicago.

To Chicago, Ill., for duty and on completion to Camp Custer, Battle Creek, Mich., base hospital, from Camp Zachary Taylor, Lieut. LAURENCE H. MAYERS, Chicago. On completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. ROBERT E. FLANNERY, Chicago.

To Corpus Christi, Texas, convalescent hospital, Lieut. THOMAS G. ALLEN, Chicago. For duty, from Fort Riley, Lieut. ARTHUR W. DOWNES, Chicago.

To Danville, N. Y., for duty, Lieuts. MAURICE J. RABINS, Chicago; JOSEPH M. KNOCHEL, Lincoln.

To Fort Adams, R. I., for duty, from Fort Riley, Lieut. FRANK KADLEC, Chicago.

To Fort McPherson, Ga., base hospital, from Fort Oglethorpe, Lieut. LEON W. KELSO, Poxton.

To Fort Oglethorpe for instruction, Capts. HENRY W. LANG, Chicago; CHARLES E. SCHULTZ, Shirley; from Camp Zachary Taylor, Capt. ALBERT A. ANKENBRANDT, Mt. Carmel. For instruction, Lieuts. JOHN D. HAWKS, Cambridge; JOSEPH G. BERKOWITZ, LLOYD B. CLINTON, ARTHUR C. CONRAD, FRANK C. FARMER, NELSON H. LOWRY, Jr., JOHN J. McDERMOTT, HARRY H. PETERSON, CHARLES E. PHIPPS, Chicago; GEO. E. LYON, Decatur; CLARENCE W. FLINT, Elgin; CALVIN C. MONTGOMERY, Lincoln; JULIAN J. GOLEMBIOWSKI, Waukegan.

To Fort Riley for duty, Capt. DAVID H. KELLER, Chicago. For instruction, Lieuts. JESSE C. BAILIFF, HARRY H. BOLTON, Jr., SIDNEY B. CONGER, *ARTHUR H.* HAUBER, JOSEPH A. JOHNSTON, IGNATIUS W. MATUSKA, PAUL H. ROWE, HENRY O. WERNICKE, JACOB W. WINE, Chicago; HUGH I. COAN, Metcalf.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieuts. WILLIS I. SILVERSTEIN, Chicago; *HUGH Q. ALLISON, Elery.*

To Hoboken, N. J., for duty, from Army Medical School, Lieut. BEVERIDGE H. MOORE, Chicago.

To Morrison, Va., Aviation Section Signal Corps, for duty, Lieut. CHARLES H. REINHARDT, Chicago.

To Newport News, Va., for temporary duty, from Fort Riley, Lieut. BERTON W. HOLE, Ashland.

To Philadelphia, for duty, from Fort Oglethorpe, Lieut. HARRY J. FORTIN, Chicago.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. GEORGE H. MILLER, Chicago.

To Rockefeller Institute, for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Williamsbridge, Lieut. ROSS W. GRISWOLD, Litchfield. On completion *to Camp Hancock*, Augusta, Ga., base hospital, from *Fort Riley*, Lieut. HARRY P. REUSS, Granite City. For instruction in laboratory work, Lieut. CHARLES POTT ECK, Chicago.

To San Juan, Porto Rico, base hospital, from Fort Riley, Lieut. CHARLES W. MATLOCK, Chicago.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. FRANK D. WILSON, Armour.

To Williamsbridge, N. Y., for duty, Lieuts. FRANK S. DICOSOLA, TIMOTHY S. HUGGARD, Chicago; from Rockefeller Institute, Lieut. PIERRE A. STEELE, Chicago.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. BERTON W. HOLE, Ashland.

Resignation of Lieut. SAMUEL I. TAUB, Chicago, is accepted.

Indiana

To Army Medical School for instruction, Lieut. EDWARD S. JOHNSTON, Star City.

To Camp Devens, Ayer, Mass., base hospital, Lieut. THOMAS P. GOVAN, Richmond.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Winfield Scott, Capt. HOMER H. TALLMAN, Culver. Base Hospital, from Fort Riley, Lieut. CHARLES E. PETERS, National Military Home.

To Camp Pike, Little Rock, Ark., for duty, from Camp Pike, Lieut. JOSEPH A. GRAHAM, Hammond.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. GEORGE H. PARMENTER, Stewartville.

To Camp Sherman, Chillicothe, Ohio, for duty, *from Fort Oglethorpe*, Lieuts. THEODORE F. SEYMOUR; Mishawaka, EARL E. JOHNSON, West Lebanon.

To Camp Travis, Fort Sam Houston, Texas, as assistant to the camp surgeon, from Fort Riley, Major EUGENE BUEHLER, Indianapolis.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. EARL L. WAITE, Rochester.

To Camp Zachary Taylor, Louisville, Ky., for duty, from duty as a contract surgeon at Camp Zachary Taylor, Lieut. STEPHEN C. MARKLEY, Richmond.

To Fort Ethan Allen Vt., for duty, from Fort Oglethorpe, Lieut. ELBERT E. FREEMAN, Greentown.

To Fort McPherson, Ga., for duty, Lieut. HERBERT T. GARRISON, Gary.

To Fort Oglethorpe for instruction, Capts. BUDD VAN-SWERINGEN, Fort Wayne; ORLOW C. SNYDER, Rockport; Lieuts. ARCHIE V. HINES, Auburn; EDWIN G. NELSON, La Porte; SAMUEL D. CLAYTON, Maxwell; *from* Camp Lee, Lieut. ELBERT BAKER, *Rockville.*

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School for duty, Capt. BONNELLE W. RHAMY, Fort Wayne.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. CHARLES N. HOWARD, Warsaw.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. FREEMAN R. BANNON, Kokomo.

Iowa

To Army Medical School for instruction, Lieut. ELLIOTT C. COBB, Sioux City.

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE J. WENZLICK, Iowa City.

To Camp MacArthur, Waco, Texas, base hospital, Capt. THOMAS M. HEARD, Sioux City.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. MILTON D. JEWELL, *Decorah.*

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. WILLIAM HARRIS, Moravia.

To Chicago, Ill., Northwestern Dental School, for instruction, Capt. CALVIN W. HARNED, Des Moines.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. *ARTHUR* DRUET, Larchwood.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. ABRAHAM G. FLEISCHMAN, Des Moines.

To Fort Riley for instruction, Capts. ALBIN B. PHILLIPS, *Clear* Lake; *GRANT AUGUSTINE, Minden; Lieuts. GEORGE F. PUFFETT*, Ames; DON HAMILTON NEWLAND, Belle Plaine; DAN L. MAHONEY, Dubuque; KINSLEY RENSHAW, McGregor; LOUIS E. ESLICK, Rockwell City. For duty, from Fort Riley, Lieut. HARRY J. JONES, North English.

To Newport News, Va., for temporary duty, from Fort Riley, Lieut. EDWIN E. WUTTKE, Sumner.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Capt. JEFFERSON D. BLYTHING, Bettendorf.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. LEOMAN D. HUFF, Lenox.

Honorably discharged, Lieuts. FRANK L. GRIFFIN, Baldwin; WILLIAM E. BROWN, Cedar Rapids.

Kansas

To Camp Upton, Long Island, N. Y., base hospital, Capt. FRANKLIN T. JOHNSON, Jr., Elindale.

To Denver, Colo., for duty, and on completion to Deming, N. M., base hospital, from Fort Riley, Lieut. WILSON K. HOBART, Topeka.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. EUGENE M. ADKINS, Galatia.

To Fort McPherson, Ga., for duty, Lieut. JOHN G. MISSILDINE, Parsons.

To Fort Riley for instruction, Lieuts. ROBERT G. KLEIN, Cimmarron; HARRY H. BROOKHART, Columbus; EARL V. ADAMS, *Ingalls.*

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. MILTON B. MILLER, Topeka.

To Waco, Texas, Signal Corps, Aviation Camp, from Fort Riley, Lieut. GEORGE W. B. BEVERLEY, Alma.

Honorably discharged, Lieut. FRANK G. ELLIS, *Frederick.*

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. WINSTON G. RAMSEY, Protection.

Resignation of Lieut. MALCOMB C. NEWMAN, Toronto, is accepted.

Kentucky

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut. GEORGE A. CRAFTON, Fulton.

To Camp Fremont, Palo Alto, Calif., for duty, from Fort MacArthur, Lieut. HUGH F. TAYLOR, Mintonville.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieut. JAMES M. MORRIS, Chestnutburg.

To Camp Sherman; Chillicothe, Ohio, for duty, Lieut. HIRAM C. BEVINS, Thomas.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. DAVID H. McKINLEY, Winchester.

To Fort Oglethorpe for instruction, Capts. LEW G. WALLACE, Falmouth; JOHN M. ACTON, Lancaster. Lieut. EDGAR HAWKINS, Louisville; from Camp Zachary Taylor, Lieuts. ALBERT STEWART, Frankfort; JAMES A. GRIDER, Smiths Grove; from Camp Wadsworth, Lieut. HOMER L. NICKELL, Salt Lick.

To Fort Riley for instruction, Lieut. KENNETH E. MONTGOMERY, Lexington.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. HENRY A. HUGHES, Bond.

To Lexington, Ky., for duty, and on completion *to Camp Zachary Taylor*, Louisville, Ky., base hospital, Capt. VIRGIL E. SIMPSON, Louisville.

To New York City for instruction, and on completion *to Fort McPherson, Ga.*, for temporary duty, Capt. JOHN W. PRICE, Jr., Louisville.

Honorably discharged, Lieut. HARVEY L. BIGGS, Jackson.

Louisiana

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Major ROY McL. VAN WART, New Orleans.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from duty as contract surgeon at New Orleans, Major EDMUND MOSS, New Orleans.

To Fort Oglethorpe for instruction, Lieuts. PRESSLY E. WERLEIN, New Orleans; GEORGE C. McKELLAR, Plain Dealing; from Camp Beauregard, Lieut. WALTER H. REILLEY, New Orleans; from Oklahoma City, Lieuts. THOMAS B. CRACROFT, Kelly; HENRY B. BURDESHAW, FRANK CHETTA, New Orleans.

To San Juan, Porto Rico, base hospital, from Camp Sevier, Capt. CHRISTOPHER L. MENGIS, Norwood.

Maine

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Major WILLIAM L. COUSINS, Portland.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. J. PELLETIER, Lewiston.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Capt. GUSTAV A. PUDOR, Portland.

Maryland

To Army Medical School for instruction, Lieut. GEORGE B. CRIST, Frederick.

To Camp Meade, Annapolis Junction, Md., base hospital, Majors PAGE EDMUNDS, ARCHIBALD C. HARRISON, Baltimore. For duty, Capt. WILLIAM K. WHITE, Baltimore.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. JAMES E. GUDD, Baltimore.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Lieut. ALEXANDER M. EVANS, Baltimore. For instruction, Lieut. FRANK P. NICHOLSON, Baltimore; from Camp Lee, Lieut. LOUIS L. JACOBS, Baltimore; from Camp Meade, Lieut. ALBERT SHELLEY, Baltimore.

Massachusetts

To Army Medical School for orthopedic instruction, and on completion *to his proper station*, from Harvard Medical School, Major ROBERT W. LOVETT, Boston. For instruction, Lieuts. STANLEY H. OSBORN, Cambridge; ERNEST E. SMITH, Webster.

To Boston, Mass., base hospital, and on completion *to Camp Dix*, Wrightstown, N. J., from Fort Oglethorpe, Capt. WESLEY T. LEE, Boston. For duty, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. RALPH C. WIGGIN, Cambridge. Massachusetts General Hospital, for instruction in urology and dermatology, from Camp Devens, Capt. CORNELIUS I. McGILLICUDDY, Boston; from Fort Oglethorpe, Lieut. WILLIAM K. TURNER, New Bedford. For duty, and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. CARL T. HARRIS, Boston.

To Camp Devens, Ayer, Mass., base hospital, from Camp Devens, Lieut. JACOB GONNERT, New Bedford.

To Camp Doniphan, Fort Sill, Okla., as sanitary inspector, from Camp Greene, Major WILLIAM J. McDONALD, Brookline. To examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. FRANCIS S. CALDICOTT, Boston.

To Camp Sevier, Greenville, S. C.; *Camp Wadsworth*, Spartanburg, S. C.; *Camp Jackson*, Columbia, S. C., base hospitals, and on completion *to his proper station*, Camp Wheeler, Major FRED B. LUND, Boston.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Lieut. GEORGE A. MACIVER, Boston.

To Camp Wadsworth, Spartanburg, S. C.; *Camp Jackson*, Columbia, S. C.; *Camp Lee*, Petersburg, Va., base hospitals, and on completion *to his proper station*, from Camp Greene, Major FRANCIS W. PALFREY, Boston.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. JOHN A. McLEAN, West Somerville; Lieut. PEIRCE H. LEAVITT, Cambridge. Base hospital, Lieut. ALLEN T. MOULTON, Roxbury.

To Cape May, N. J., for temporary duty, Lieut. HARRY C. SOLOMON, Boston.

To Fort Ethan Allen, Vt., for duty, from Fort Oglethorpe, Lieut. ROBERT S. FLETCHER, Oxford.

To Fort McPherson, Ga., for duty, from Fort Oglethorpe, Lieut. EARL H. HUSSEY, Fall River.

To Fort Oglethorpe for instruction, Lieuts. ROBERT J. COOK, Boston; SAMUEL E. CHALFEN, Cambridge; THOMAS B. RAFFERTY, Lynn.

To Fort Rodman, Mass., for duty, from Fort Adams, Lieut. VICTOR S. MERRITT, Springfield.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN F. MARTIN, Boston.

To Hoboken, N. J., for duty, Capt. ORVILLE R. CHADWELL, Jamaica Plains; from duty as a private at Camp Devens, Lieut. ANTHONY J. RODERICK, New Bedford.

To New York, Bellevue Hospital, for instruction and on completion *to Camp Devens*, Ayer, Mass., base hospital, Lieut. EDWIN A. MESERVE, Boston. Neurosurgical school, Neurological Institute, for instruction and on completion *to Camp Wheeler*, Macon, Ga., base hospital, Lieut. DONALD MUNRO, Milton.

To Rockefeller Institute for instruction in laboratory work and on completion *to Army Medical School*, for duty, Capt. GEORGE G. PARLOW, Fall River; Lieut. FRANK B. BERRY, Cambridge. For instruction in the serum therapy of pneumonia, Lieut. ARTHUR B. LYON, Boston.

To San Juan, Porto Rico, base hospital, Lieut. STEPHEN J. DALTON, Marlboro.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Major WALTER B. LANCASTER, Boston.

Michigan

To Army Medical School for instruction, Lieut. EMMETT C. TRONELL, Detroit.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. MAXWELL LANDO, Detroit.

To Brooklyn, N. Y., base hospital, from Newport News, Lieut. ROBERT A. DAVIS, Clinton.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. CLARENCE A. CHRISTENSEN, Detroit; from Fort Oglethorpe, Lieut. ERNEST C. SCHULTZ, Detroit.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieuts. CLAYTON A. WHITE, Burnips; WILLIAM G. SCHLEGELMILCH, Detroit; COLIN C. VARDON, East Jordan.

To Camp Jackson, Columbia, S. C., base hospital, from Fort McHenry, Lieut. EDWIN M. CHAUNCEY, Albion.

To Cape May, N. J., for duty, Capt. RAY CONNOR, Detroit.

To Columbus Barracks, Ohio, for duty, Capt. BENJAMIN E. A. CRANE, Saginaw, Lieut. EDWARD J. AGNELLY, Detroit.

To Corpus Christi for duty, from Camp Sherman, Capt. BERTRAM H. OLMSTEAD, Calumet.

To Fort Oglethorpe for instruction, Lieut. ARTHUR R. MUSSELL, Clare.

To Fort Riley for instruction, Capt. WILLIAM S. BROWNELL, Detroit.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Oglethorpe, Lieut. WILBUR F. SHIRKEY, Jr., Detroit.

To Hoboken, N. J., for duty, from Camp Custer, Lieut. ROSCOE C. MAIN, Marquette.

To Pittsburgh, Pa., for instruction, and on completion *to their proper stations* from Fort Oglethorpe, Capt. GEORGE S. FODEN, Highland; Lieut. LUCIUS M. PATTERSON, Detroit.

To Rockefeller Institute for instruction, and on completion *to Camp MacArthur*, Waco, Texas, base hospital, from Fort Riley, Lieut. HAROLD B. MARKHAM, Marquette.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. HAROLD F. CLOSZ, CLYDE R. VAN GUNDY, Detroit; NELSON McLAUGHLIN, Lake Odessa; EARL V. McCOMB, Menominee.

To Williamsbridge, N. Y., for duty, Lieuts. AARON L. CHAPMAN, Detroit; CUTHBERT E. DEMAY, FRED L. RHODES, Jackson.

To the inactive list, from Camp Doniphan, Lieut. DAMON O. WALTHALL, Ann Arbor.

Honorably discharged on account of physical disability existig prior to his entrance into the service, Lieut. OSCAR P. GEIB, Hubbardson.

Minnesota

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Lieut. FRANK W. WHITMORE, St. Paul.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. ROBERT I. BARICKMAN, Lewisville.

To Camp Dodge, Des Moines, Iowa, base hospital, Major FRANK E. BURCH, St. Paul.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. EDWARD J. ENGBERG, St. Paul.

To Camp Lee, Petersburg, Va., base hospital, from Boston, Lieut. CHARLES K. HOLMES, St. Paul.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. CHARLES H. GHENT, St. Paul.

To Cape May, N. J., for temporary duty, from Walter Reed General Hospital, Lieut. ARTHUR T. HENRICI, Minneapolis.

To Chicago, Ill., Northwestern University Dental School, for instruction, Capt. WARNER M. KARSHNER, Rochester.

To Fort Leavenworth, Kans., Department Laboratory, Capt. WINFIELD S. NICKERSON, Long Lake.

To Fort McPherson, Ga., base hospital, Lieut. OLIVER C. NELSON, Rochester.

To Fort Oglethorpe for instruction, from Oklahoma City, Capt. ROBERT H. MONOHAN, International Falls; Lieut. WILLIAM A. LEE, Underwood.

To Fort Riley for instruction, Capt. HARRY H. SELLERS, Minneapolis; Lieuts. LINWOOD M. KEENE, Alexandria; BERNT ODEGNARD, Emmons; JOHN G. GOGGIN, Stewartsville.

To Hoboken, N. J., for duty, from Camp Upton, Capt. GORDON G. ST. CLAIR, Section Thirty.

To New York City for instruction in orthopedic surgery, from Allentown, Lieut. PAUL W. GIESSLER, Minneapolis.

To Pittsburgh, Pa., for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. FRANK E. ELLISON, Monticello.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, Lieuts. HERMAN W. HUNDLING, RALPH R. SIMMONS, Rochester.

To San Francisco, Calif., for instruction, and on completion *to his proper station*, from Camp Kearny, Capt. RALPH J. SEWALL, Minneapolis.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. PARKER L. BERGE, Brainerd.

To Washington, D. C., for duty, from Fort Oglethorpe, Major CHARLES H. MAYO, Rochester.

Mississippi

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ROBERT H. PEGRAM, Potts Camp.

To Camp Devens, Ayer, Mass., as a member of the tuberculosis examining board, from Camp Devens, Capt. PARKER M. CORT, Springfield.

To Camp Sheridan, Montgomery, Ala., *Camp Wheeler*, Macon, Ga., *Camp Gordon*, Atlanta, Ga., *Camp McClellan*, Anniston, Ala., base hospitals, and on completion *to his proper station* from Camp Shelby, Major WALTER W. CRADFORD, Hattiesburg.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieuts. ABNER J. BARNETT, Carthage; VERSILE E. GATES, Raber.

To Fort Oglethorpe for instruction, Lieuts. HENRY G. KALDROP, Bethany; THOMAS A. STRAIN, Meridian; CASSIUS D. ALEXANDER, Vaiden; from Camp Beauregard, Lieut. HUGH L. McCALIP, Rockport; from Camp McClellan, Lieut. HILTON R. CARR, Water Valley.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. GRAHAM W. DIGGS, Black Hawk.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. JOHN H. KELLIS, Shugualak.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES Q. FOUNTAIN, Bay St. Louis; ARCHIBALD W. McNEAL, Ruleville.

Resignation of Lieut. JAY R. MANNING, Corinth, is accepted.

Missouri

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Capt. WILLIAM T. PATTERSON, Shelbina.

To Army Medical School for instruction, from Washington, D. C., Capt. GREENE D. McCALL, Fulton.

To Austin, Texas, for duty, from Fort Riley, Lieut. CHARLES MOORE, Advance.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. VINCENT F. TOWNSEND, St. Louis.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. GROVER C. JOHNSON, Beele.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Riley, Lieut. HERBERT H. PRICE, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, Lieuts. MERRILL N. SMITH, Fayette; IRWIN H. SCHMIDT, St. Louis.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. WALTER J. JARACZ, St. Louis.

To Camp Sherman, Chillicothe, Ohio, Lieut. ORRILL LEG. SUGGETT, St. Louis.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieuts. MEYER S. FLEISHER, JOHN R. VAUGHAN, St. Louis.

To Corpus Christi, Texas, Convalescent Hospital, from Camp Custer, Major WILLIAM J. FRICK, Lancaster. For duty, from Fort Riley, Lieuts. VIRGIL S. DANGERFIELD, Lurray; JAMES T. COOK, WALTER J. MELLIES, St. Louis.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. JOHN H. WHITTAKER, Kansas City.

To Fort Ethan Allen, Vt., for duty, from Fort Riley, Lieut. LUX H. BOCK, St. Louis.

To Fort McPherson, Ga., base hospital, Capt. GEORGE H. HOXIE, Kansas City; Lieuts. MORRIS H. CLARK, CHARLES C. DENNIE, Kansas City; HENRY ST. C. O'DONNELL, St. Louis.

To Fort Riley, base hospital, Capt. JAMES G. CALHOUN, St. Louis. For instruction, Capt. THOMAS C. RICHARDS, Fayette; Lieuts. GOUGH H. TARR, Charleston; BID C. COLE, De Witt; EUGENE A. MILLER, HENRY O. WITTEN, St. Joseph; JAMES C. LANDREE, St. Louis.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. HARRY S. CRAWFORD, Harrisonville.

To Jefferson Barracks, Mo., to conduct a nutritional survey, from Belleville, Ill., Capt. DON R. JOSEPH, St. Louis.

To Lake Charles, La., Signal Corps Aviation School, Gerstner Field, from Fort Riley, Capt. NORVELL W. SHARPE, St. Louis.

To Newport News, Va., for duty, Lieuts. JONAS C. KOPELOWITZ, DANIEL P. WRIGHT, St. Louis; from Fort Riley, Lieut. FLOYD H. MAPLES, St. Louis.

To Pittsburgh, Pa., for instruction, and on completion *to his proper station*, from Fort Riley, Lieut. CLAY M. MULLINAX, Princeton.

To Rockefeller Institute for instruction, and on completion *to Camp Wadsworth*, Spartanburg, S. C., base hospital, from Fort Riley, Lieut. MADISON J. PULLIAM, St. Louis.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. CLYDE M. VALSLEY, Joplin.

Montana

To Camp Lewis, American Lake, Wash., base hospital, Lieut. FRANK W. COTTON, Lewistown.

To Corpus Christi, Texas, for duty, from Fort Riley, Lieuts. WILLIAM D. MADDEN, Great Falls; WINFIELD S. FAULDS, Roy.

To Fort Clark, Texas, for duty, from Fort Riley, Lieut. CLAUDE C. TUCKER, Scobey.

To Fort Riley for instruction, Lieut. EUGENE F. BRINDJONC, Butte.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Grant*, Rockford, Ill., base hospital, Lieut. CARL A. JOHNSON, Anaconda.

Nebraska

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. CHARLES C. WALLINGSFORD, Ogallala.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Capt. JOHN BUIS, Pender.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. WILLIAM EDMONDS, Nebraska City.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. CLARK D. SPIVEY, Lincoln.

To Fort Omaha, Neb., for duty, Lieut. LEONARD RIGGERT, Omaha.

To Fort Riley for instruction, Major CHARLES A. HULL, Capts. JOHN R. NILSSON, NORMAN C. PRINCE, Omaha. Base hospital, Capt. JAMES C. WADDELL, Pawnee City. For instruction, Lieuts. JOHN H. REGAN, Grand Island; MILES J. BREUER, Lincoln; ARTHUR J. GRIOT, Long Pine; JOHN L. LINN, Omaha.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Lieut. HANS C. PEDERSEN, Dannebrog.

To New York City, Neurological Institute, for intensive training in nervous diseases, Capt. GUSTAVE W. DISHONG, Omaha.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. SANFORD R. GIFFORD, Omaha.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Capt. GLYNDON A. YOUNG, Ponca.

The resignation of Lieut. HERMAN A. GERBIG, Friend, is accepted.

New Hampshire

To Brooklyn, N. Y., base hospital, Lieut. DANIEL J. SULLIVAN Manchester.

To Hoboken, N. J., for duty, Lieut. GOODWIN A. JOHNSON Concord.

New Jersey

To Army Medical School for instruction, Lieuts. SYDNEY CHAYES Bayonne; JOHN H. E. FUST, Corney's Point; GERALD L. HIGGINS, Jersey City; WILLIAM W. SISSERSON, Westfield.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Capt. CHARLES R. MITCHELL, Paterson.

To Camp Custer, Battle Creek, Mich., base hospital, Lieuts. IRWIN MARKOWITZ, ABRAHAM J. NEWMAN, Jersey City.

To Camp Devens, Ayer, Mass., base hospital, Lieut. EDMUND J DALY, Bayonne.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Fort Riley, Lieut. BENNETTE W. HOAGLAND, Woodbridge.

To Camp Lee, Petersburg, Va., base hospital, from Camp Lee, Lieut HOWARD S. SMITH, Newark.

To Camp Sheridan, Montgomery, Ala., *Camp McClellan*, Anniston Ala., *Camp Pike*, Little Rock, Ark., for duty and on completion *to his proper station*, Major GEORGE H. LATHROPE, Morristown.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe Lieut. FRANCIS W. PIKE, Hoboken.

To Danville, N. Y., for duty, Lieut. FRANK J. VAN NOORT Paterson.

To Fort Monroe, Va., for duty, from Fort Oglethorpe, Lieut. JOHN A. BOTTI, Jersey City.

To Fort Oglethorpe for instruction, Lieut. BENJAMIN J. SILVERSTEIN, Newark.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps from Army Medical School, Lieut. JOHN F. WEBER, South Amboy.

To Newport News, Va., for temporary duty, from Fort Oglethorpe Capt. LEONARD F. HATCH, Vineland.

To New York City, Bellevue Hospital, for instruction and on completion *to Camp Upton*, Long Island, N. Y., base hospital, Lieut. BERNARD A. O'CONNOR, Harrison.

To Rockefeller Institute for instruction and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut BROOKE DODSON, Penns Grove.

To San Juan, Porto Rico, base hospital, from Camp Wheeler, Capt JESSE D. LIPPINCOTT, Newark.

To his home and honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM L. BULLOCK, Atlantic City.

New Mexico

To Camp Cody, Deming, N. M., for duty, Capt. SILVINS S. CRAIG, Santa Rosa.

New York

To Allentown, Pa., base hospital, from Fort McHenry, Capt. MORRIS J. KARPAS, Lieut. ROYALL G. CANNADY, New York City.

To Army Medical School for instruction, Lieuts. JAMES A. BILELLO, WILLIAM H. COOK, JOSEPH G. STRICKLER, Brooklyn; SAMUEL BARONE, RAYMOND HENSEL, PORTER A. STEELE, Buffalo; EDMUND H. PARIZOT, Cochecton; J. DE RAISMES COMBES, Elmhurst; ROY J. JUHRE, Fredonia; JOHN F. HEALEY, Hornell; FRANCIS G. RILEY, Jamaica, L. I.; MAURICE B. BENDER, LEO. MICHAELS, New York City; LEON C. COTE, Warrensburg.

To Brooklyn, N. Y., base hospital, Capts. SAMUEL F. FISHER, JAMES T. FLANAGAN, Brooklyn; from Camp Beauregard, Capt. MORRIS B. BEECROFT, Brooklyn; from Kelly Field, Capt. JOHN F. W. MEAGHER, Brooklyn. Base hospital, Lieuts. RALPH H. GARLICK, CHARLES E. RYND, Brooklyn; from Cornell Medical College, Lieut. RICHARD A. RENDRICH, Brooklyn; from Camp Upton, Lieuts. GEORGE C. McELVARE, RICHARD F. SEIDENSTICKER, Brooklyn; from Fort Jay, Lieut. ROBERT T. IRVINE, Ossining; from Fort Oglethorpe, ARTHUR J. O'CONNOR, Brooklyn.

To Camp Cody, Deming, N. M., to examine the command for mental and nervous diseases, Lieuts. ABRAHAM M. RABINER, Albany; CLARENCE J. D'ALTON, New York City.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. MORRIS JACOFF, Brooklyn.

To Camp Fremont, Palo Alto, Calif., for duty, from Presidio, Lieut. EDWIN M. JOHNSON, New York City.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS A. ROGERS, Plattsburg; from Camp Greene, Lieut. ARTHUR F. KRAETZER, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieuts. AMOS J. MINKEL, Hamburg; HOWARD D. MacFARLAND, Westernville.

To Camp Jackson, Columbia, S. C., for duty, from Camp Jackson, Major WALTER BENSEL, New York.

To Camp Lee, Petersburg, Va., base hospital, Capt. WILLIS S. COBB, Corning; Lieut. ANTONIO L. BARONE, Buffalo.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. ARTHUR L. CHAMBERS, New York City.

To Camp Merritt, N. J., *Camp Dix*, Wrightstown, N. J., *U. S. Filling Station*, Edgewood, Md., *Camp Meade*, Annapolis Junction, Md., *Fort Myer, Va.*, *Camp Devens*, Ayer, Mass., *Camp Upton*, Long Island, N. Y., for inspection, and on completion *to his proper station*, Capt. BRAINERD H. WHITBECK, New York.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Lieut. ALLEN E. VAN NOSS, New York City.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. CHARLES LUTZ, New York City.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. WILLIAM ZUCKERMAN, Brooklyn.

To Camp Stuart, Newport News, Va., for duty, from *Fort Ethan Allen*, Major ARTHUR S. MOORE, Middletown; from Camp Greene, Capt. EMIL ALTMAN, New York.

To Camp Travis, Fort Sam Houston, Texas, to examine the command for mental and nervous diseases, from Kelly Field, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

To Camp Upton, Long Island, N. Y., *Camp Devens*, Ayer, Mass., *Camp Meade*, Annapolis Junction, Md., base hospitals, and on completion *to his proper station*, from Camp Dix, Capt. HOWARD BOVAIRD, New York. *To Camp Upton*, base hospital, from Camp Upton, Capt WALTER H. VOSBURG, Dunkirk. For duty, from Fort Oglethorpe, Capt. JAMES H. McCORT, Sag Harbor; from Camp Upton, Lieuts.

JOSEPH L. BEHAN, SOLOMON J. SAMBUR, Brooklyn. Base hospital, Lieuts. CESARE MONDINI, Brooklyn, LOUIS L. GOLDBLATT, New York City.

To Curtis Bay, Md., for duty, from Fort Oglethorpe, Lieut. GUNNI J. BUSCK, Westfield.

To Fort McPherson, Ga., for duty, Lieut. SAMUEL ZUCKERMANN, New York City.

To Fort Oglethorpe for instruction, Capts. CHARLES H. GALLAGHER, Ithaca; JAMES P. FISKE, New York City; MYRON B. PALMER, Rochester; from Camp Lee, GEORGE D. HAMLEN, New York. For instruction, Lieuts. RAYMOND F. A. KIRCHER, Albany; JAMES T. BOYD, CLARENCE F. FOWLER, JAMES C. SHARP, Brooklyn; BROOKS W. McCUEN, Cohoes; WILLIAM B. GIBB, Haverstraw; THOMAS A. McGRATH, Hoosick Falls; JACOB BRANOWER, LOUIS CARP, MICHAEL E. CAVALLE, KIRBY DWIGHT, FREDERICK W. HOLCOMB, ANTHONY MANGIARACINA, ABRAHAM B. PENSLER, New York City; LAWRENCE E. COTTER, Poughkeepsie; LOUIS E. McCANNA, White Plains; from Camp Beauregard, Lieut. STANLEY S. INGALLS, Parish; from Camp Gordon, Lieut. ALBERT F. A. BARRY, Stony Point; from Camp Lee, Lieuts. NELSON H. HOLDEN, Brooklyn; FRANCIS ARGUS; Buffalo; SIDNEY TRATTNER, THERON C. WALKER, New York City; from duty as a private at Camp Upton, Lieut. EDGAR B. PROUT, New York City; from Fort McHenry, Lieut. LEO GOTTSCHALK, Bronx; from Fort Oglethorpe, HERBERT ADLER, New York.

To Fort Riley for duty, from Camp Custer, Lieuts. WILLIAM T. SHIELDS, Troy. For instruction, from Camp Dodge, Lieut. RALPH L. DOURMASHKIN, New York City.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieuts. HENRY BOLEY, Brooklyn; LLOYD T. McNULTY, Norwood; PAUL S. PERSONS, Ripley; from Fort Oglethorpe, Lieut. HERMAN MARTINSON, New York City.

To Hoboken, N. J., for duty, Major RAYMOND CLARK, Lieut. JAMES L. COBHAM, Brooklyn; from Camp Upton, Lieut. WILLIAM H. SEWARD, Amsterdam.

To Jefferson Barracks, Mo., to conduct a nutritional survey, from Belleville, Ill., Lieut. ALLEN G. T. HIPPS, Brooklyn.

To Muncy, Pa., and *Clifton Springs, N. Y.*, for inspection and on completion *to his proper station*, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Newport News, Va., for duty, Lieut. ARCHIBALD BUCHANAN, Troy.

To New York City as instructor in orthopedic work, from New York City, Capt. BRAINERD H. WHITBECK, New York. For temporary duty, Capt. JOHN F. FRASER, New York City. Neurological Institute, for intensive training, Capt. ARTHUR D. DRYFOOS, New York City; Lieuts. HAROLD R. ROBERT, Dannemora; LEONARD S. NOLAN, Syracuse. Base hospital, Lieut. THOMAS E. LAVELLE, New York City; and on completion *to Fort McHenry, Md.*, for temporary duty, from Hoboken, Lieut. THOMAS F. DAVIES, Floral Park.

To Princeton, N. J., Princeton University, for duty, Lieut. PETER P. McGLADE, New York City.

To Rockefeller Institute for instruction, and on completion *to Camp Lee*, Petersburg, Va., base hospital, Major THOMAS B. SPENCE, Brooklyn. On completion *to Camp Hancock*, Augusta, Ga., base hospital, Major JAMES H. LAWSON, New York. On completion *to his proper station*, from Camp Greene, Capt. CORDEN T. GRAHAM, Rochester. On completion *to Williamsbridge, N. Y.*, for temporary duty, from Fort Oglethorpe, Capt. WILLIAM J. MEYER, White Plains; Lieut. SEYMOUR G. CLARK, Brooklyn; from Fort Riley, Lieut. THEODORE B. REED, New York. For instruction in laboratory work, Lieuts. ADOLPH G. DE SANCTIS, JACQUES S. UHR, New York City. On completion *to Army Medical School* for duty, Lieut. MAXIMILIAN B. HEMSER, New York City.

To San Juan, Porto Rico, base hospital, from Camp Sheridan, Major EDWARD W. PEET, New York; from Fort Oglethorpe, Lieut. ERNEST L. SCHNEFER, Brooklyn.

To University, Va., for duty, and on completion *to Camp Sevier*, Greenville, S. C., base hospital, from Rockefeller Institute, Lieut. HERBERT F. JACKSON, New York.

To Washington, D. C., for duty in the Surgeon General's Office, Major LEWIS A. CONNER, New York City. Government Hospital for the Insane, for intensive training, from Camp Jackson, Capt. GEORGE A. BLAKESLEE, New York.

To Watervliet, N. Y., for duty, from duty as contract surgeon at Watervliet, Capt. FRANCIS J. NOONAN, Troy.

To Williamsbridge, N. Y., for instruction in hospital management, Capt. EDMOND J. BARNES, New York City. For duty, from New York City, Major LEWIS G. COLE, New York City. For duty, Lieuts. FRANK KRUSE, CHARLES C. PANZARELLA, Buffalo; CARL G. SEHWAN, Danville; JACOB SACHA, Rochester.

Honorably discharged on account of physical disability existing prior to entrance into the service, Major ROBERT W. ANDREWS, Poughkeepsie; Capts. GEORGE S. ALLEN, Clyde; LESLIE M. WILKINS, Dexter; Lieuts. CHARLES S. GOODWIN, Bridgeport; LEO GOTTSCHALK, SAMUEL SWIFT, New York City.

Honorably discharged, Lieuts. PERRY J. MANHEIMS, WILLIAM B. NOYES, New York City.

Resignations of Capt. FLOYD A. BENJAMIN, Cherry Creek, and Lieut. LEANDER P. FERNANDEZ, Yonkers, are accepted.

North Carolina

To Army Medical School for duty, Lieut. JOHN E. WINE, Wilmington. For instruction, Lieut. RICHARD B. DAVIS, Weeksville.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Lieut. BURTON B. STURDIVANT, Sunburst.

To Camp Lee, Petersburg, Va., as divisional tuberculosis specialist, from Camp Lee, Lieut. JOHN DONNELLY, Charlotte.

To Camp Pike, Little Rock, Ark.; *Fort Oglethorpe, Ga.; Camp McClellan*, Anniston, Ala.; *Camp Sheridan*, Montgomery, Ala., for duty, and on completion *to his proper station*, Major JOHN T. BURRUS, High Point.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Lieut. L. DOWE FLOYD, Cerro Gordo.

To Fort Caswell, N. C., for duty, Capt. ANDREW H. HARRISS, Wilmington.

To Fort Oglethorpe for instruction, from Camp Greene, Lieut. HARVEY ROBINSON, Reidsville.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. JOHN C. DYE, Statesville.

To San Juan, Porto Rico, base hospital, from Camp Beauregard, Lieut. ANDREW B. HOLMES, Council.

Resignation of Lieut. LEAMAN BAGGETT, Tabor, is accepted.

North Dakota

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. DICKINSON C. WHITLOCK, Epping.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. CARL VOSS, Hettinger.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. BERNARD D. VERRIT, Rolla.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. JOSEPH A. SMITH, Noonan.

Honorably discharged on account of physical disability existing prior to his entrance into the service, Lieut. WILLIAM L. COWPER, Michigan.

Ohio

To Army Medical School for instruction, Lieuts. ROBERT J. JUDKINS, Barnesville; EDWARD P. NEARY, Cleveland; THOMAS F. HIGGINS, Toledo.

To Brooklyn, N. Y., base hospital, from Camp Upton, Lieut. CARROLL H. SKEEN, Senecaville.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Shelby, Lieut. ZALMON C. SHERWOOD, Geneva.

To Camp Cody, Deming, N. M., for duty, from Kelly Field, Lieut. JAMES A. BELYEA, Toledo.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. ALFRED T. COLE, Cincinnati; from Fort Oglethorpe, Lieut. CHARLES R. DEEDS, Dalton.

To Camp Greene, Charlotte, N. C., base hospital, Capt. HARRY S. HAYES, Whitehouse.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ROBERT A. THORNTON, Columbus.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. LESLIE E. LUEHRS, Cincinnati.

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Sherman, Capt. ROBERT W. WILLIAMS, Cleveland; Lieut. HENRY M. METCALF, Elyria.

To Camp Taylor, Louisville, Ky., base hospital, Lieut. GEORGE A. GORSUCH, Bowling Green.

To Cincinnati, Ohio, base hospital, and on completion *to Camp Sherman*, Chillicothe, Ohio, for temporary duty, from Camp Zachary Taylor, Lieut. LAUREN N. LINDENBERGER, Cincinnati.

To Columbus Barracks, Ohio, for duty, Lieut. EVERETT T. SKEELS, Akron.

To Edgewood, Md., for duty, Lieut. HAROLD R. NEELAND, Akron.

To Fort Oglethorpe for instruction, Capts. WILLIAM W. McMILLAN, Marietta; DANIEL C. MOOR, Toledo; Lieuts. HERBERT A. RODENBAUGH, Barberton; ALBERT P. HOFMANN, ALEXANDER R. JOHNSTON, Cincinnati, PAUL C. GAUCHAT, JAMES R. MOORE, HERMAN SHUBE, Cleveland; VICTOR B. WELLER, Delaware, ADDISON H. HATTERY, Fostoria; FREDERICK M. HOUGHTALING, Huron, CHARLES R. FISHEL, Thurston; from Camp Wadsworth, Lieut. JOHN H. NORRICK, Frederickstown.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieut. FRANK S. VAN DYKE, Columbus; from Fort Oglethorpe, Lieut. GEORGE W. MANNING, Kelley's Island.

To Philadelphia, Pa., for duty, from Jenkins Arcade, Lieut. GUY H. SWAN, Bellefontaine.

To Rockefeller Institute for instruction, and on completion *to Camp Dix*, Wrightstown, N. J., base hospital, Capt. BENJAMIN F. LEHMAN, Cincinnati. For instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieuts. JAY B. RUDOLPHY, Barbertown; ALBERT F. SNELL, Jr., Cincinnati; MAURICE RICHARDSON, Cleveland.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. EDGAR D. ALLEN, Crooksville; WALTER E. DAPP, Youngstown.

To Washington, D. C., for duty, from Army Medical School, Lieut. CHARLES A. S. WILLIAMS, Marietta.

To their homes and honorably discharged on account of physical disability existing prior to entrance into the service, Capt. ALBERT J. BRAINARD, South Euclid; Lieut. HENRY C. PRILL, Cleveland.

The resignation of Lieut. GEORGE R. WISEMAN, Amherst, is accepted.

Oklahoma

To Camp Bowie, Fort Worth, Texas, for temporary duty, and on completion to Oklahoma City, Lieut. WILLIS E. WEST, Oklahoma City.

To Camp Cody, Deming, N. M., for instruction, Capt. RALPH V. SMITH, Tulsa. For duty, from Camp Cody, Lieut. CHARLES W. ALEXANDER, Temple; from Oklahoma City, Lieut. GARDNER H. APPLEWHITE, Shawnee.

To Camp Pike, Little Rock, Ark., to examine the command for mental and nervous diseases, Lieut. JAMES J. GABLE, Norman.

To Corpus Christi, Texas, as commanding officer, from Camp Sheridan, Major FRED H. CLARK, El Reno.

To Fort Leavenworth, Kan., Department Laboratory, Lieut. BARTON H. WATKINS, Gotobo.

To Fort Oglethorpe for instruction, Lieut. FRANCIS A. DEMAND, Oklahoma City; from Camp Beauregard, Lieut. GEORGE W. TILLY, Kusa; from Oklahoma City, Lieuts. REUBEN M. HARGROVE, Norman; NOVAL W. CAMPBELL, Poteau.

To Fort Riley for instruction, Lieuts. JULIUS W. NIEWEG, Duncan; GEORGIA M. COMBEST, Lamar; ELMER F. GARLINGON, Olustee, from Camp Doniphan, Lieut. R. EARLE SMITH, Gracemont.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. WILLIAM B. HARNED, Chattanooga.

The resignation of Lieut. JAMES E. PARRAMORE, Antlers, is accepted.

Oregon

To Camp Fremont, Palo Alto, Calif., for duty from Western Department, Lieut. JAMES A. BEST, Pendleton.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILLIAM S. KNOX, Lieut. FLOYD B. LAWTON, Portland.

To Fort Riley, base hospital, Lieut. ARTHUR S. ROSENFELD, Portland.

To report by wire to the Commanding General, Western Department, for assignment to duty, Lieuts. GORDON MacCRACKEN, Ashland; WILLIAM E. HEDGES, Juntura.

To San Francisco, Calif., for instruction and on completion *to Camp Kearny*, Linda Vista, Calif., base hospital, Capt. HILLIS H. HATTERY, Pendleton. On completion *to Camp Lewis*, American Lake, Wash., base hospital, Lieut. EDWARD F. ZIEGELMAN, Portland.

Pennsylvania

To Army Medical School for instruction, Lieuts. HAROLD H. LAMB, Braddock; HARRY L. BAKER, Catasauqua; MICHAEL R. LONG, Leetonia; RAY R. HETHERINGTON, JOHN H. McCUTCHEON, Philadelphia; GEORGE W. KRICK, Jr., Reading; PHILIP L. COOK, Wyalusing. For orthopedic instruction, Lieut. MAX A. BLUMER, Pittsburgh.

To Boston, Mass., General Hospital, for instruction in urology and dermatology, Lieut. JOHN B. HAINES, Philadelphia.

To Camp American University, Washington, D. C., for duty from Fort Oglethorpe, Lieut. WALLACE R. McCLELLAN, Garrett.

To Camp Cody, Deming, N. M., to examine the command for mental and nervous diseases, Major HORACE PHILLIPS, Philadelphia. For duty, from Kelly Field, Lieut. EMORY L. DRAVO, Warren.

To Camp Doniphan, Fort Sill, Okla., to examine the command for mental and nervous diseases, from Camp Beauregard, Capt. WILLIAM W. *RICHARDSON, Mercer.*

To Camp Meade, Annapolis Junction, Md., for temporary duty and on completion *to Camp Greene*, Charlotte, N. C., as division psychiatrist, from Camp Wadsworth, Capt. SAMUEL LEOPOLD, Philadelphia. Base hospital, from Camp Meade, Lieut. SYLVIA J. ROBERTS, Etters.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Lieut. JOSEPH A. ZOOK, Morgantown.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. FRANK L. SHENK, Linglestown.

To Camp Sherman, Chillicothe, Ohio, from Fort Oglethorpe, Lieuts. ISAIAH C. MORGAN, Edwardsville; GEORGE F. BAIER, Philadelphia.

To Camp Upton, Long Island, N. Y., for duty, from Camp Upton, Major HENRY P. BROWN, Philadelphia; Capt. BRANTLY F. PARKER, York.

To Camp Wheeler, Macon, Ga., *Camp Sheridan*, Montgomery, Ala., *Camp McClellan*, Anniston, Ala., and *Fort Oglethorpe*, for duty and on completion *to his proper station*, from Fort McPherson, Major WILLIAM W. BABCOCK, Philadelphia.

To Columbus Barracks, Ohio, for duty, Lieut. ALEXIS D. SMITH, Philadelphia.

To Fort Andrews, Mass., for duty, from Fort Oglethorpe, Lieut. ADAM S. KEPPLE, Hannastown.

To Fort Bayard, N. M., for observation and treatment, Lieut. GEORGE P. PILLING, Philadelphia.

To Fort Ethan Allen, Vt., for duty, from Fort Oglethorpe, Lieut. JAMES R. GEMMILL, Canton.

To Fort McPherson, Ga., for duty, Capt. HARRY C. WEBSTERVELT, Pittsburgh.

To Fort Oglethorpe, for instruction, from Camp Lee, Capt. ELMER G. WEIBEL, Erie; from Camp Meade, Capt. EDWARD McI. HALEY, Blossburg. Base hospital, Lieut. OTHMAR F. BARTHMAIER, Philadelphia. For instruction, Lieuts. THOMAS R. MORGAN, Bellefonte; *DON C. FOSSELMAN, Connellsville*; WALTER W. SCHMID, *Crafton;* EDWARD H. McCLISTER, Kittanning; RALPH L. ENGLE, JOSEPH L. MacCABE, CHARLES D. SAUL, THOMAS H. WALKER, Philadelphia; WILLIAM L. BOTKIN, HOWARD S. MYERS, KARL P. WICKERMAN, Pittsburgh; JAMES P. H. RUDDY, Scranton.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Army Medical School, Lieuts. ROBERT E. BARTO, Elizabeth; JAMES C. HAWKINS, McKees Rocks; SYDNEY L. WINGRADE, Philadelphia; ABRAM V. HICKS, JOHN L. STAFFY, Pittsburgh; from Fort Oglethorpe, Lieuts. WILLIAM B. PETERS, Jr., Appalachia; ROSS H. JONES, Condersport; URBAN H. REIDT, Jeannette; ALOIS F. SEIFRIS, Mars; HERBERT B. SHEARER, Norristown; VICTOR J. B. FRIES, Philadelphia; CHARLES F. NETZEL, Plymouth; JAMES B. McAVOY, South Bethlehem; JOSEPH L. *McGINLEY, Wilkes-Barre.*

To Hoboken, N. J., for duty, Lieut. HARRY W. MILLIKEN, Sharon.

To New York City, Neuro [illegible] instruction, from Fort Riley, Lieut. DAVID B. HA [illegible] for intensive training, Lieut. WALTER R. KR [illegible]

To Philadelphia, as executive chairman of the Pennsylvania State Committee, Medical Section, Council of National Defense, and on completion *to Fort Oglethorpe* for instruction, Lieut. CHARLES S. MILLER, Philadelphia.

To Rockefeller Institute for instruction and on completion *to Fort Oglethorpe* for instruction, Major JAMES P. KERR, Pittsburgh. On completion *to Camp Devens*, Ayer, *Mass.*, base hospital, Lieut. THOMAS A. SHALLOW, Philadelphia. For instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. MYRON A. ZACKS, Philadelphia.

To San Juan, Porto Rico, base hospital, from Camp Greene, Lieut. JOHN J. DONOHUE, Fractville.

To Washington, D. C., for duty, from Philadelphia, Major ISAAC H. JONES, Philadelphia.

To Williamsbridge, N. Y., for *temporary* duty, on completion of instruction, Lieut. CLAUDE L. BRADFORD, Pittsburgh.

To the inactive list, Major JOSEPH McFARLAND, Philadelphia.

Honorably discharged on account of physical *disability* existing prior to entrance into the service, Lieuts. CHARLES C. WALLACE, Josephine; WILLIAM H. McKEEVER, Philadelphia; ERNEST W. DOWNTON, Starrucca.

Porto Rico

To San Juan, Porto Rico, as commanding officer of base hospital, from duty as advisor to the governor of Porto Rico, Major W. F. LIPPOTT, San Juan. Base hospital, Capts. WALTER A. GLINES, LUIS G. DEQUEVEDO, San Juan; Lieuts. DOMINGO A. CRESCIONI, Comerio; FRANCISCO J. M. HERNANDEZ, Juncos; RICARDO MESTRE, FELIX G. DE LA TORRE, Mayaguez; FERNANDO H. JANER, Patillas; CHARLES S. MOSS, Ponce; PEDRO R. CASELLAS, JOSE C. FERRER, PEDRO G. IGARAVIDEZ, San Juan.

Rhode Island

To Army Medical School for instruction, Lieut. JOHN L. HEALY, Newport.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Capt. JAMES HAMILTON, Jr., Providence.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. CHARLES M. COLLINS, Providence.

Honorably discharged on account of physical disability *existing prior* to his entrance into the service, Lieut. CARL R. DOTAN, Providence.

South Carolina

To Army Medical School for instruction, Lieuts. CARROLL J SCURRY, Cross Hill; THURMAN G. WRIGHT, Fairmont.

To Brooklyn, N. Y. base hospital, from Williamsbridge, Capt MORGAN P. MOORER, Georgetown.

To Camp Lee, Va., base hospital, from Boston, Lieut. RALPH H McFADDEN, Chester.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. THOMAS H. SYMMES, St. Matthews.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe Lieut. HARRISON A. PRUITT, Anderson.

To Fort Oglethorpe for instruction, Lieut. REMBERT J. CONEY Eutawville; *JOHN M. BARNWELL*, Florence; COLLINS E. SMITH Ridgeville; WILLIAM R. BLACKMAN, Rock Hill.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut, CARROLL S. HOWELL, Marion.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. FRANCIS A COWARD, Columbia.

To Waco, Texas, from Fort Riley, Lieut. JAMES H. CRAWFORD, Castlewood.

South Dakota

To Fort Leavenworth, Kan., Department Laboratory, Lieut. GEORGE A. STEVENS, Sioux Falls.

To Fort Riley for instruction, Lieut. WILLIAM J. FERGUSON, Milbank.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieuts. DANIEL D. RABER, Buffalo; HARLEY D. NEWBY, Parker.

Tennessee

To Camp Bowie, Fort Worth, Texas, as division psychiatrist, from Camp Bowie, Lieut. HOWARD M. FRANCISCO, Nashville.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. JOHN E. SILVER, Jellico.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. ROBERT L. MOTLEY, Jr., Dyersburg.

To Fort Oglethorpe for instruction, Capt. HERBERT H. McCAMPBILL; Lieuts. SAMUEL D. JOHNSON, Knoxville; JOHN C. WITHERINGTON, Munford; JOHN C. WOODS, Newport; BENJAMIN F. LORING, Union City; from Camp Beauregard, Lieuts. JOHN W. FROST, Fruitland; BENJAMIN L. SCHOOLFIELD, Memphis; from Camp McClellan, Lieut. *THOMAS M. HARPER, Medina;* from Camp Sevier, Lieut. WILLIAM H. DELAP, La Follette.

To Fort Riley for duty, from Fort Riley, Major WILLIAM A. HOWARD, Cookeville.

To Hoboken, N. J., for duty from Camp Devens, Capt. HOWARD L. WALKER, Memphis.

To Markleton, Pa., for duty, from Fort Oglethorpe, Lieut. ROBERT PILLOW, Jr., Columbia.

To New Orleans, Charity Hospital, for instruction and on *completion to Camp Sevier*, Greenville, S. C., base hospital, Lieut. THOMAS JENNINGS, Peabody.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from Fort Oglethorpe, Capt. *CLAUDE A. KRAZIER, Knoxville.*

Honorably discharged, Lieut. THOMAS A. MITCHELL, Nashville.

Texas

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. GEORGE B. GLOVER, Refugio.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. JOHN G. McLAURIN, Dallas, Texas.

To Corpus Christi, Texas, for duty from Fort Riley, Capt. THOMAS P. DOOLE, Eagle Lake; Lieut. *GEORGE W. GRISWOLD, Cisco.*

To Fort Benjamin Harrison, post hospital, Lieut. EDWARD C. BRANNON, Waco.

To Fort Oglethorpe for instruction, Lieuts. WILLIAM M. DICKENS, Greenville; CHARLES M. McMILLAN, Plantersville; *AUSTIN F.* LEACH, Weatherford; from Camp Travis, Lieuts. JAMES W. McKEE, Houston; JOHN J. GILL, Lamasco; BENJAMIN F. GIBSON, *Lufkin*; From Oklahoma City, Lieuts. CHARLES E. SCULL, San Antonio; DALLAS SOUTHARD, Stamford; CLAUDE E. PIERSALL, Wolfe City.

To Fort Riley for instruction, Lieut. LAMARTINE O. DUDGEON, Sweetwater; from Taliaferro Field, Lieuts. V. *BASCOM COZBY*, Grand Saline; JAMES D. CURRIE, Hico; REESE F. CURRIE, Manchaca; NOAH D. CARTER, Robstown.

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. MATTHEW F. KREISLE, Austin.

To Houston, Texas, Signal Corps, Aviation School, Lieuts. FRANKLIN B. KING, Lott; DAVID L. LOWRY, Teague.

To Rockefeller Institute for instruction and on completion *to Camp Jackson*, Columbia, S. C., base hospital, from Fort Riley, Lieut. JOSEPH J. ROBERTSON, Kingsville.

Honorably discharged on account of physical *disability existing prior* to entrance into the service, *Lieut.* LEMM FAULK, Alba.

Resignations of Lieuts. CHARLES H. REAGAN, Beeville; THOMAS J. RATLIFF, Colorado, are accepted.

Utah

To Camp Logan, Houston, Texas, base hospital, from Oklahoma City, Lieut. EZEKIEL R. DUMKE, Ogden.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. GUY C. EMERY, Salt Lake City.

To St. Louis, Mo., for duty from Fort Douglas, Capt. ARTHUR A. BIRD, Magna.

Vermont

To Garden City, Long Island, N. Y., Aviation Section Signal Corps, from Fort Oglethorpe, Lieut. HENRY E. SOMERS, West Derby.

To Fort Oglethorpe for instruction, Capt. EDWARD F. MURRAY, Burlington; Lieut. *WILLIAM O. HUTCHINSON*, Washington.

Virginia

To Allentown, Pa., base hospital, from Fort McHenry, Lieut. ROBERT F. GAYLE, Richmond.

To Army Medical School for instruction, Lieuts. JAMES H. WALTON, Cherrydale; ROLAND E. S. TAYLOR, Dante; JAMES W. CLARKSON, Mount Solon.

To Brooklyn, N. Y., base hospital, Lieut. HUBERT K. TURLEY, City Point.

To Camp Lee, Petersburg, Va., base hospital, Capt. EDWARD P. ODEND'HAL, Wytheville.

To Camp McClellan, Anniston, Ala., for duty, from duty as a lieutenant in the Medical Corps, Lieut. GUY B. DENIT, Salem.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Oglethorpe, Lieut. THOMAS H. MASSEY, Warm Springs.

To Corpus Christi, Texas, for duty, from Fort Riley, Capt. HARRY A. JEFFERSON, Clintonville.

To Fort Oglethorpe for instruction, Capts. CHARLES E. SEARS, Airpoint; LEWIS M. ALLEN, Gaylord; Lieuts. ST. CLAIR DARDEN, Branchville; HUNTER McQ. DOLOS, Norfolk; WILLIAM B. McILWAINE, Petersburg; from Camp Lee, Lieut. CLAY M. EASTER, Chincoteague Island.

To Richmond, Va., base hospital, and on completion *to Camp Lee*, Petersburg, Va., for temporary duty, from Camp Lee, Capt. JAMES H. SMITH, Richmond.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Lieut. PAUL C. DAVIS, Roanoke.

To Washington, D. C., for duty, Lieut. WILLIE S. HODNETT, Richmond.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOSEPH C. DUNFORD, Portsmouth.

Washington

To Camp Fremont, Palo Alto, Calif., for duty, from Fort Stevens, Lieut. PAUL C. RIDPATH, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. GUY E. MARCY, Montesano.

To Fort Riley for duty, Lieut. CHARLES F. ENGELS, Seattle. For instruction, Lieut. JACOB S. SMITH, Bellingham; from Camp Lewis, Lieuts. CHARLES C. HARBOUGH, Sedro-Wooley; FREDERICK W. WICHMAN, Tenino.

To report by wire to the commanding general, Western Department, for assignment to duty, Lieuts. CLARENCE E. WHITNEY, Buckley; CARL L. TAYLOR, Sumner; CLAIR C. WILCOX, Vancouver.

To Rockefeller Institute for instruction and on completion *to Camp Meade*, Annapolis Junction, Md., base hospital, from Fort Riley, Lieut. WHITING B. MITCHELL, Sumner.

To San Francisco, Calif., for instruction and on completion *to their proper stations*, from Camp Lewis, Capts. PAUL J. CARTER, Port Townsend; FRANK P. GARDNER, Seattle; WILLIAM B. McNERTHNEY, Tacoma. For duty, from duty as a contract surgeon, Lieut. MARCO M. HANSEN, Seattle.

Honorably discharged, Lieut. SHELBY C. SHURICK, Seattle. *On* account of physical disability existing prior to entrance into the service, Lieut. KENNETH J. HOLTZ, Renton.

West Virginia

To Fort Hamilton, N. Y., for duty, from Fort Oglethorpe, Capt. DAVID HOTT, Morgantown.

To Fort Oglethorpe for instruction, Capt. JOHN E. McQUAIN, Spencer; Lieuts. JOHN S. CAYCE, Ben Bush; BYRON W. STEELE, Mullens; JOSEPH H. FERGUSON, Sherrard; FERDINAND W. WIEHE, Wheeling.

To Hoboken, N. J., for duty, from Army Medical School, Lieut. ALVIN McCLUNG, Pickens.

To Newport News, Va., for temporary duty, from Fort Oglethorpe, Lieut. HARRY L. BEARD, Lewisburg.

To Rockefeller Institute for instruction in laboratory work and on completion *to Army Medical School* for duty, Lieut. RALPH LEM. WOODRUFF, Moundsville.

To Washington, D. C., for duty, from Army Medical School, Lieut. DAVID T. WILLIAMS, Martinsburg.

Wisconsin

To Boston, Mass., General Hospital, *for instruction* in urology and dermatology, Lieut. JOHN W. HANSEN, Milwaukee.

To Camp Cody, Deming, N. M., for duty, from Camp Cody, Lieut EZRA J. MITCHELL, Brodhead.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. MARTIN F. DUFRENNE, Sun Prairie.

To Camp Doniphan, Fort Sill, *Okla.*, for duty, from Fort Riley, Lieut. CLARK B. DEVINE, Marshall.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Allentown, Lieut. LEON G. SMITH, Ellsworth.

To Cape May, N. J., for temporary duty, and on completion *to his proper station*, Major NELSON M. BLACK, Milwaukee.

To Corpus Christi, Texas, for duty, from Fort Riley, Lieut. DANA B. DISHMAKER, Kewaunee.

To Fort Riley for instruction, from Sheboygan, Wis., Major EDWARD J. BARRETT, Sheboygan.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. IRVING VAN V. GRANNIS, Menomonie.

To Rockefeller Institute for instruction, and on completion *to Camp Dodge*, Des Moines, Iowa, base hospital, from Fort Riley, Lieut. THOMAS C. CLARKE. On completion *to Camp Sherman*, Chillicothe, Ohio, base hospital, from Fort Riley, Lieut. WILLIAM N. MOORE, Appleton.

To St. Louis, Mo., Washington University, for instruction in urology and dermatology, from Fort Riley, Lieut. OLE A. NELSON, Park Falls.

To Waco, Texas, Signal Corps Aviation Camp, from Fort Riley, Caps. FRANK S. TUFFLEY, Boscobel; Lieuts. CHARLES F. REHLING, Fremont; FRANCIS T. H'DOUBLER, Madison; LEONARD J. BACHINSKI, JAMES D. NELSON, Milwaukee; EDWARD C. PFEIFER, Sheboygan Falls; JOHN C. KYLLO, Superior, WILLIAM T. MURPHY, Waukesha.

To [illegible] *Y.*, for temporary duty, Lieut. GEORGE N. [illegible]

[illegible] on account of physical disability existing prior [illegible] vice, Lieut. FRANK W. MACKOY, Milwaukee.

Wyoming

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. OLIVER CHAMBERS, Rock Springs.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Reciprocal Relations.—The Alabama State Board of Health reports that reciprocal relations have now been established with Arkansas, Georgia, Iowa, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Ohio, Pennsylvania, Tennessee and Virginia.

Sanitary Work and Infectious Diseases.—In the zone surrounding the camp at Anniston, March 6, five crews of men operating under the direction of the sanitary unit of the United States Public Health Service started to clean out streams and ditches, make fillings, and to carry out other measures for cleaning up and drying out the territory for the protection against mosquitoes. Sanitary measures are also being taken to prevent malaria in the industrial area in Lauderdale and Colbert counties where government industrial plants are under construction. Dr. Jesse L. Prince, Stevenson, of the federal health department, is in charge of the work, assisted by Dr. Samuel W. Welch, Talladega, state health officer.——The smallpox epidemic at Mobile is now on the wane, and cases of measles are becoming fewer. At Huntsville, a general clean-up of the town is in progress, preparatory to a health survey which is to be made under the direction of the civic league and Dr. Carl A. Grote, Jasper, health officer.

ARKANSAS

Sanitary Undertakings.—The state board of health, March 5, sent out circulars containing regulations of the board of health with reference to the control and treatment of persons having venereal disease. This action was urged by Surgeon-General Blue of the United States Public Health Service. To meet the situation, action, urged by Provost-Marshal-General Crowder, has been taken to vaccinate against smallpox and to innoculate against typhoid fever all men named in the selective draft. The idea is to have the men protected against the diseases named before they enter the military camps.

CONNECTICUT

Health Board Matters.—At Hartford, the city board of health increased the salaries of the superintendent of the board of health from $2,700 to $3,000 and of his assistant, from $1,650 to $1,800, both increases to become effective, April 1.——During February the death rate for the city was 18.9 per thousand of population. During that month there were reported 20 cases of tuberculosis, 20 of diphtheria, 24 of scarlet fever, 7 of chickenpox, 13 of measles, 68 of whooping cough, 2 of erysipelas and 5 of mumps. The school medical inspectors examined 1,587 children and excluded 177.

FLORIDA

Miscellaneous.—In 1917, Florida, with a resident population of about 1,000,000, had a death rate of 514, as against 9.3 per hundred thousand for the previous year. Of the deaths, 143 were due to homicide, 73 were due to railway accidents, 53 to automobile accidents and 3 to street car accidents.——At the annual election of officers of the Anti-Tuberculosis Association at Jacksonville, March 7, Dr. Harry L. Brown was elected president in place of Dr. Louis A. Bize, Tampa, who retired from the organization as vice president. Dr. Joseph Y. Porter also retired as one of the honorary vice presidents.——An appropriation of $10,000 was asked from the city council of Jacksonville to be used by the city to abolish mosquito breeding places. The work is to be done in cooperation with the United States Public Health Service and the American Red Cross.

GEORGIA

Abolishing Health Office.—On account of a large deficit in the city finances the city council of Columbus voted, March 8, to abolish the position of city health officer, which was occupied by Dr. John T. Monçrief. This office involved a municipal expenditure of about $3,000.

Cooperation with Government Authorities.—At Atlanta, March 6, city, county and federal health officials met for the purpose of adjusting differences in regard to carrying out health regulations. Among the official persons at the meeting were Dr. Leslie L. Lumsden, Washington, D. C., and Dr. Randolph M. Grimm, Spartanburg, of the United States Public Health Service, who had been engaged in extra-cantonment work, and John P. Kennedy, city health officer, with other members of the city health administration. By the cooperation of all concerned in the work, duplication of efforts will be avoided, and money saved.

ILLINOIS

New Officers.—At the annual meeting of the Cass County Medical Society, held at Virginia, February 28, the following officers were elected: president, Dr. John G. Franken, Chandlerville; vice president. Dr. George Bley, Beardstown; secretary, Dr. William R. Blackburn, Virginia, and treasurer, Dr. Charles M. Hubbard, Virginia.

Personal.—Dr. Guy A. Sloan, Bloomington, has been elected county physician.——Dr. Walter M. Cress, Atkinson, has sold his residence and will go into a sanatorium on account of ill health.——The state civil service commission has announced the appointment of the following medical examiners, Dr. John W. Hutton, Newton; Dr. Omar A. Kell, Salem; Dr. Frank B. Hiller, Pinkneyville; Dr. W. Brown Baird, Mount Carmel, and Dr. Ross L. Moter, Albion.

Chicago

Symposium on Angina Pectoris.—The Institute of Medicine will meet March 28 in the LaSalle Hotel at 8 p. m. to hear a symposium on angina pectoris. The papers will include "Personal Experiences of One of Our Members," "Pathology of Angina" by Prof. E. R. LeCount, "Coronary Thrombosis in Relation to Angina" by Dr. J. B. Herrick, and "Clifford Albutt's Views in Regard to the Etiology of Angina" by Dr. Robert H. Babcock. Fellows of the Institute are privileged to invite guests.

Health in February.—During the second month of 1918 there were 2,808 deaths from all causes, as against 3,457 for the same month of 1917. The rate was 14.7 for 1918 and 17.7 for 1917. During the month, there were 4,773 cases of communicable diseases reported, as against 8,159 for the preceding year. Decreases were especially notable in typhoid fever, chickenpox, scarlet fever, diphtheria and pneumonia. There were 159 deaths of children under 2 years of age from diarrhea and enteritis, as compared with 191 for the same period of 1917.

Lectures on Tuberculosis.—Under the auspices of the Chicago Tuberculosis Institute, a course of lectures on tuberculosis in relation to modern problems will be given at the City Club during March and April. The first lecture of the course was given March 21 on "The Press and Tuberculosis," by Dr. W. A. Evans. The succeeding lectures will be delivered by Dr. C. C. Stillman on "The Red Cross and Tuberculosis," March 28; "The United Charities and Tuberculosis," Eugene T. Lies, April 4; "The War and Tuberculosis," Dr. George T. Palmer, April 11, and "Occupation for Disabled Soldiers with Special Reference to Tuberculosis," by John E. Ransom, April 18.

IOWA

Personal.—Dr. Daniel J. McCarthy, Davenport, a member of the Red Cross contingent in Roumania, was compelled to leave Jassy on account of the advance of the Germans for Odessa. Arrangements had been made for this mission to return through Austria-Hungary and Switzerland.——Dr. Charles S. Grant, major, M. R. C., has been elected a member of the school board of Davenport.——Capt. John H. Peck, M. R. C., of Camp Dodge has been elected president of the Iowa Association for the Prevention of Tuberculosis.

KENTUCKY

Investigation of Milk Prices.—Owing to the prevailing prices of market milk, it has been stated that a probe will be ordered by the food authorities at Washington, D. C. The retailers have reduced the price paid the producers 2 cents a gallon, but have not reduced the price to consumers.

Changes in State Board of Health.—March 5, the state senate passed a bill abolishing the state board of health and recreating it with ten instead of eight members. Under the new measure the governor is to appoint four physicians from the present board, two from the tuberculosis commission, one member of the state board of pharmacy, and two physicians from the state at large. A tenth member is to be named by the board. The bill allows a county or contiguous counties to declare themselves health districts with a full time health officer and laboratory and with the supervision over school, hotel and food inspection. The districts also take over the duties formerly performed by the state tuberculosis commission.

Farm Colony for Feebleminded.—Another progressive bill has passed the senate which provides for the establishment of a home and farm colony for feebleminded and epileptic persons. An appropriation of $25,000 for two years is made for the establishment of the colony. The bill provides for a per capita payment of $75 for the maintenance of the inmates, in lieu of the amount now allowed for the home care of pauper idiots. The "committee" system of caring for such wards is abolished. The farm colony is to be under the care of a physician as superintendent who must be an expert, with at least two years' experience in an institution of like nature. His salary is not to exceed $4,000 annually. This bill was introduced as a result of an exhaustive survey by a commission appointed by the governor, which found a deplorable state of affairs existing in the care of the feebleminded of the state.

General Clinic Organization Proposed.—In connection with a survey of the Lexington board of charities made under the direction of Mayor Rogers, Miss Byington, a specialist in social work from New York, who is in charge of the survey, recommends the establishment of a general clinic organized with the Good Samaritan Hospital as a basis. She submitted a working plan for such a clinic, which would abolish the office of city physician, and provide that the work, including the medical follow-up work, be performed by a physician in the hospital, with such assistants as might be appointed and with the aid of the Public Nursing Association. To initiate the plan, it is proposed that a committee be appointed consisting of the president of the county medical society, president of the board of health, chief of the staff of the Good Samaritan Hospital, and a physician from the St. Joseph's Hospital, as well as a member of the social welfare committee.

Louisville

Control of Slaughter Houses.—For the first time Louisville has arrived at a working basis for the control of slaughter houses. In the reorganization of the health office, one of the departments established is food and dairy inspection under the supervision of Dr. William E. Gary. A comprehensive ordinance prescribing the sanitary regulations of slaughter houses has been passed, and many houses which are unable to come up to the requirements will be forced to close. Major Lunsford D. Fricks, of the United States Public Health Service, is cooperating with the city health office. This department is specially interested in abating the fly nuisance in summer.

MARYLAND

Personal.—Dr. Thomas H. Brayshaw, who has been confined to his home at Glenburnie, for four weeks from an attack of pneumonia, is improving.

Hospital for Blind Soldiers.—The Surgeon-General's Office has announced through the division on woman's war work, committee on public information, its plans for using the Baltimore estate of Mrs. T. Harrison Garrett, tendered to the government several weeks ago for the treatment of maimed or otherwise disabled soldiers. The woman's committee in a statement disclosed the general plans for reeducating the blind among returning troops. The estate comprises 99 acres and will be used as a complete hospital school for the blinded officers and men. There are two houses, one of which will be used for enlisted men and will accommodate 150 persons, and the other will serve as officers' quarters and will afford accommodations for twenty-five men. A swimming pool and gymnasium will be provided at the estate. Women relatives of the men will be asked to participate in the work of the school and will be given an insight into the difficulties and best methods of training the blind.

MASSACHUSETTS

Boston

Prenatal Letters.—The *Public Health Bulletin* for September, 1917, contained an announcement that the department had prepared a series of nine "Prenatal Letters," one for each month of the pregnant period. These letters are intended for distribution, at monthly intervals, to expectant mothers whose application may be made to the department direct, or may be transmitted to the department through the attending physicians, visiting nurses, etc. Specimen sets of the letters will be gladly sent to any physician on request. The cooperation of all physicians is sought in the circulating of these letters, which are intended to help reduce the high infant mortality rate in Massachusetts, which is about 100 per thousand infants born. Application should be addressed to the Division of Hygiene, State Department of Health, Boston.

MICHIGAN

Violation of Quarantine Regulations.—Dr. R. M. Olin, secretary of the state board of health, has charged that the city of Jackson has modified the quarantine regulations of the state without authority for so doing. As a result of his charge, Camp Custer soldiers have been forbidden to leave trains at Jackson.

Funds Exhausted.—At Grand Rapids the county auditors have objected to paying a bill of $5,000 rendered by the city for the care of cases of contagious disease, because of the rapid exhaustion of the $50,000 county fund for this purpose, even before the bill for about 300 smallpox cases was paid. It is said that much money has been expended by the welfare department in the care of tuberculous cases which properly should have come from some other fund. An investigation by the county attorney has been ordered.

College to be Taken Over.—It was reported, March 6, that steps were being taken to incorporate the Detroit College of Medicine and Surgery as a part of Detroit's educational system, eventually to become a department of the University of Detroit, which is in contemplation. The matter was brought before the city council, March 12, but no definite action was taken. It is said that the school is in debt to the amount of about $30,000, and that its absorption into the city's educational system is part of the plan to rehabilitate it and put it on a better financial basis.

MINNESOTA

Personal.—Dr. A. E. Shannon was appointed health officer at Bemidji, March 6.——Dr. A. H. Doty, Minneapolis, was acquitted by a jury in the Ramsay County courts, March 6, on a charge of criminal malpractice.——Dr. W. M. Sweeney, local health officer at Red Wing, is disabled by a fracture of the foot which occurred several weeks ago.

Contagious Diseases and Death Rate.—Two new cases of smallpox were reported, March 5, from the Red Wing Seminary, making the total number of patients in the city eight, seven of whom are quarantined in the seminary.——One case of diphtheria and one of scarlet fever were added to the number of contagious cases in the city.——In 1917, there were 23,433 deaths in Minnesota, practically half of which were from preventable causes. The death rate, however, was lower than for the preceding year. During recent months, according to a bulletin of the state board of health, cancer has been the cause of more deaths than either tuberculosis or pneumonia.

MISSOURI

State Health News.—March 6, it was reported from Kansas City that two more cases of spinal meningitis were isolated, and further orders were issued regarding the disease. On that day, there were seven cases of smallpox in the city and the members of the contagious disease division of the state board of health were busy vaccinating the members of construction groups in the city. Also, a new case is said to have been found.——Inmates of the Isolation Hospital for Smallpox at Leeds have made complaints about the conduct of the hospital and particularly about the food. A rule was made that soldiers having smallpox would not be received. The government authorities were notified, for they must make provision for soldiers. At St. Louis a physical instructor in one of the high schools developed smallpox, March 7, and a general vaccination in pupils was instituted.——At Louisiana, Dr. Hardin, city health officer, received a report from the state bacteriologist at Jefferson City, March 6, that out of four specimens of water, one was found bad, and the people were advised to continue boiling the water until it proved to be safe.——Five new ambulances were purchased, March 6, for the use of the health department in Kansas City.——At a meeting of the Engineer's Club in St. Louis at the club, March 6, the engineer of the city plan commission declared that the congestion in certain parts of St. Louis was responsible for much ill health and delinquency of children and adults. He described the plan of redistricting, as well as the zoning system in various other cities, and he explained why St. Louis should adopt the zoning system to promote the growth and the health of the city.

MONTANA

Hospital Items.—The campaign for $80,000 for the Bozeman Deaconess Hospital, ended February 16, with a total subscription of $96,144.50.——Mr. R. O. Wilson has resigned as registrar at the state college, Bozeman, to accept a position as business manager of the Murray Hospital, Butte.

Appropriation for Laboratory.—The board of county commissioners of Big Horn County has made an appropriation for laboratory equipment for the county health officer, Dr. Wilson A. Russell, Hardin, who has done exceedingly good work in rural school inspection and sanitation during the past year

Deaths of Adults from Poliomyelitis.—A report from Red Lodge, February 18, announces that two men, aged 30 and 28, living on a ranch near that place, died of poliomyelitis. One of the patients died after being brought to Red Lodge. The other presented himself at the office of a local physician shortly after the death of the first patient, who was the latter's employer.

NEBRASKA

Smallpox.—An epidemic of smallpox is reported to be current in Bayard and Gering.——At Kearney, schools, theaters and other places of public meeting were closed on account of the prevalence of contagious diseases, especially smallpox, measles and mumps.

Base Hospital Mobilizes.—Major Arthur C. Stokes, of the Medical Corps of the Army, has been ordered to active duty at Omaha, Neb., to mobilize the enlisted personnel of the base hospital for the state university. After the mobilization the base hospital will go to Fort Des Moines, Iowa, for temporary duty and training.

Control of Social Diseases.—At Omaha an ordinance has been prepared declaring that an emergency exists in Omaha in connection with the prevalence of social infections, and requires that the diseases be reported. The health commissioner is ordered to isolate the victims for such time as may be necessary. The health officer, Dr. Ralph W. Connell, Omaha, has ruled that in the occurrence of social diseases, men and women must be treated alike, and that they will be held under equal penalties.

NEW YORK

Recommendations on Narcotic Addiction.—The joint committee on public health of the New York Academy of Medicine and of the New York Psychiatrical Society has presented recommendations on the care of the narcotic addiction problem. The committee recommends that the federal government abolish the manufacture of heroin, control and regulate the sale and distribution of opium and cocain and that the attention of the government be limited to these drugs unless occasion seems to demand inspection of others. The investigations of the committee show that the drug habit as a result of illness or operation of mental states is a negligible proportion of the total. About 4 per cent. of cases investigated indicate that the habit is formed through the advice and prescriptions of physicians using the reduction treatment. It is recommended that treatment be given only in properly organized hospitals or under institutional conditions, and for the present that psychopathic hospitals or pavilions be used for this purpose. New legislation is recommended to control drug addiction and the use of drugs by physicians more definitely than does the legislation at present in force. The committee recommends also that a thorough study be made of the extent and causes of drug addiction, including information as to the age, sex, occupation, environment, mental and physical condition of victims, and as to how the habit was formed.

Miscellaneous.—On account of a difference of opinion as to appointees between the mayor of Watervliet and the town council, the city has been without a health board for some time. March 7, Deputy State Health Commissioner Matthias Nicoll, Jr., in a letter to the common council urged the appointment of a board in compliance with the law. Dr. John Haswell is the health officer, but has not power to act in certain matters that require the authority of a full board. ——At Little Falls, March 5, the public health nurse reported more work than she could handle and asked for the appointment of an additional school nurse. On account of pollution of the water supply, the health officer advised the boiling of the water. On that date there were no smallpox cases in

On the other hand, the authorities must instruct the public on the dangers of using just any milk, especially for children; the consumer must be taught to inspect the wagon and the bottles and the man who brings his supply of milk; we have seen some of these milk wagons and their drivers so dirty and foul that we really wondered if there was any human being who could drink milk handled in such a manner. The problem of the milk is not an easy one to solve. It will take years of hard struggle, but the battle must be fought.

We are paying for milk 25 and 30 cents a quart, and we think that we deserve clean milk for that price.

PARIS LETTER

Paris, Feb. 21, 1918.

War Tremors

At one of the recent meetings of the Société de neurologie, Drs. Henry Meige and Mme. Bénisty presented a number of patients afflicted with tremors, and emphasized particularly the clinical characters which permit of a differentiation between tremors of organic origin and those of a neuropathic or emotional origin. Among the organic, they insisted on the morphologic and physiologic objective characters of the Parkinsonian type, of which they presented a characteristic example consecutive to traumatism. They also showed cases of nervous tremors the result of wounds or of concussion, and also cases of tremors antedating the war, occurring among emotional subjects. They distinguish, besides true tremor, clonic movements which are sometimes confounded with the latter, and which are the result of certain lesions of the peduncular protuberance. In the clinical diagnosis it is essential to examine with care the seat and the form of the tremor. When it is confined to the fingers and is fine and rhythmic, it is nearly always of organic origin. One frequently sees a nervous tremor involving only the flexors and extensors of the wrist, or the pronators and supinators without any involvement of the fingers. When studying a tremor it is essential to determine by manual palpation the sensations experienced while mobilizing parts of the limb. The waxy flexibility, *flexibilité cirreuse* of Parkinson's disease, is clearly distinct from the cog wheel resistance, *résistance à crans,* perceptible in the majority of nervous tremors, and evidenced by a succession of contractions and relaxations, more or less brusque, occurring at regular intervals.

EVOLUTION OF TREMOR

The evolution of a tremor is also of diagnostic value. It may be (1) progressive, localized at first in one member or in part of a member, but progressively involves one or more of the other members. Parkinson's disease belongs in this class. Or the tremor may be (2) retrogressive, generalized at first but tending gradually to become localized in one member or part of a member. This evolution is characteristic of tremors of neuropathic origin. There is further (3) the migratory tremor, whose localization varies, as do likewise its extent and time of appearance. The migration of the tremor may occur spontaneously. It can be rendered more apparent by changing the position of the member, or if one or more parts or segments are immobilized.

HYPERTONICITY WITH TREMOR

Meige and Bénisty also called attention to the necessity of morphologic examination, which enables one to appreciate the state of permanent hypertonicity of certain persons with tremor, a phenomenon to whose existence in Parkinson's disease Paul Richet and Meige have previously called attention, and which may also be seen in paratonic subjects. It is evidently a manifestation of *déséquilibration motrice congénitale.* Dr. Tinel, chef de clinique à la Salpêtrière, stated that he had observed several cases of neuropathic tremor of a member since this condition had been cured by intense faradic reeducation. He has also noted the migration of certain tremors. The neuropathic tremors are at the same time real, involuntary, persisting during sleep and even under the influence of chloral, but, nevertheless, perfectly influenced by reeducation. There exists in these cases a state of neuromuscular hyperexcitability associated with a persistent emotional state.

Intestinal Parasitism in the Troops

Dr. de Vézeaux de Lavergne recently reported to the Société médicale des hôpitaux de Paris the results he obtained from examination of 200 healthy men at the front and of men who were slightly ill, for the purpose of determining what intestinal parasites are present in these men. His findings may be thus summarized: 1. He never found ova of the ancylostoma. 2. Among 100 soldiers living in the trenches there were found 73 carriers of trichocephalus, 7 carriers of trichocephalus and ascaris, and 8 carriers of ascaris. The total percentage of 88 parasite carriers is comparable to the figures reported of helminthiasis in miners. 3. Among the men living behind the front lines, in the cantonments, there were found 63 per cent. of carriers of trichocephalus and no ascaris. 4. The number of trichocephalus ova found among the well varied from one to five per field. 5. Eosinophilia was never present in any of the trichocephalus carriers, no matter how large a number of parasites were present. On the other hand, eosinophilia was always present among the ascaris carriers; the proportion varied from 4 to 9 per cent. 6. The pathogenicity of these parasites appears to be very limited. The results of the examination made of persons only slightly ill, who were cared for in the ambulances at the front or even in the regimental infirmaries, were as follows: In ten cases of nonbloody diarrhea, unaccompanied by fever, with neither dysentery bacilli nor ameba found in the stools, the ova of parasites were extremely numerous. In eight cases trichocephalus ova were found, from fifteen to twenty per field. In two cases of diarrhea, labeled "rebellious diarrhea with colic," a number of ascaris ova were present. These patients were cured by thymol, calomel and santonin. Finally, among fourteen patients with *courbature fébrile,* the only sign appearing to be fever, remittent in character, a considerable number of trichocephalus ova were found. Thymol seemed to act favorably in these cases.

New Food Regulations

The commissioner of foods has published a decree regulating the manufacture, the sale and the consumption of certain food commodities. The decree deals with (1) the manufacture, the sale and the consumption of bread; (2) a new regimen imposed on the pastry bakers, the biscuit bakers and the confectioners; (3) a regulation imposed on hotels, restaurants and all establishments open to the public; (4) the details of application of the new measures adopted. Henceforth, it is forbidden to manufacture, sell or place on sale, in any form whatever, fresh or dried pastry, pâté crust, or biscuits, as well as confectionery, (*confiserie*) or fruit sweetmeats (*fruits confits*). It is also forbidden to manufacture any chocolate other than the chocolate commonly sold in tablets, in sticks, etc., and containing not more than 36 per cent. of cocoa. In the hotels, restaurants, cafés, etc., it is forbidden to serve or to consume a whole list of certain foods, among which may be mentioned, notably, butter, milk, cream, sugar, and cheese containing more than 36 per cent. of fat. Furthermore, in these establishments meals may be served only from 11 to 2:30, and from 6:30 to 9:30.

Personal

The Académie des Sciences recently elected two national correspondents for the sections of anatomy and zoology. M. Vayssière, professeur à la Faculté des sciences de Marseille, was elected to take the place of the late M. Renaut, and M. Cuénot, professeur à l'Université de Nancy, was elected to take the place of the late Maupas, the naturalist.

The American Red Cross and the Society of Men of Letters

Every one knows that the American Red Cross is spending hundreds of millions of dollars, which are in large part furnished by the subscriptions and donations of American friends of France. They have supported the French military activities by the establishment of hospitals and ambulances, by sending surgical instruments, and by the organization of canteens and shelters in certain situations. They also have provided means to receive and care for orphans and children of refugees and repatriates; they have aided in rebuilding ruined cities, in reconstructing and again making useful agricultural districts, and, finally, they have inaugurated a more methodical and more effective campaign against tuberculosis.

Acting in behalf of the French writers, who are all particularly interested in the rapid reconstruction of all the creative forces of our country, the Société des gens de lettres tendered a reception recently in its quarters at Rougemont to the directors and chiefs of services of the American Red Cross. The delegation, which was in charge of Mr. Homer Folks, director of the civilian work of the American Red Cross, consisted of Major J. H. Perkins, commissioner for France; Ralph J. Preston, delegate commissioner; W. S. Patten, director of the service for military affairs; H. O. Beatty, director general; Alexander Smith, food commissioner: Livingston Farrand, former president of the University of Colorado, now president of the American Commission of the Rockefeller Foundation for the Control of Tuberculosis, etc. All the members of the board of the Society of Men of Letters assisted at this reception. The president, M. Georges Lecomte, welcomed the delegates and spoke of the reasons why French literature must be profoundly sympathetic with the work that is being done by the American Red Cross and give full recognition to the devoted men and the generous donors whose valuable cooperation has made it possible to carry on this work successfully. Then, after stating that the delegation from the Red Cross was composed of representatives of the highest American individuality, prominent physicians and surgeons, professors from the most celebrated universities of the United States, and social organizers and workers, he expressed the hope that the bonds of literature and science uniting the intellectuals of the two republics would lead to still closer union between the Americans and the French. Homer Folks, in replying, gave expression to the sentiments of esteem and affectionate admiration with which the American Red Cross associates its efforts with those of France in this time of great trial.

LONDON LETTER

LONDON, Feb. 26, 1918.

Organized German Brutality to Prisoners

A government report on the treatment of British prisoners of war during their transport from France and Belgium to Germany during the period from August to December, 1914, has just been published. It is based on the carefully collected evidence of forty-eight officers and seventy-seven noncommissioned officers and men. In almost every case the treatment of the British prisoners was barbarous, but the most striking fact is that this treatment was deliberate and carried out by order. The few instances of humanity shown "force into all the greater relief . . . a remarkable record of organized cruelty." For that cruelty the German Imperial Government was responsible. The principal means used were: 1. Careful neglect to give medical treatment to wounded prisoners (during journeys that lasted from two to five days). 2. Overcrowding of officers and men—wounded and unwounded—usually in uncleansed horse and cattle trucks. 3. Nonprovision of sanitary accommodation. Elementary requirements of decency and cleanliness were constantly refused. 4. Deliberate deprivation of food and water. The German Red Cross nurses habitually declined to supply the British prisoners. 5. Differential treatment of British and French prisoners with the object of degrading the British. At all stages of the journey British prisoners were displayed to the execration of the crowd. There are many examples of other acts of brutality, the commonest being the striking of and the spitting on officers and men and the theft of their belongings. One officer was compelled by a German nurse to walk naked from his stretcher to the station buffet (used as a hospital) a distance of 100 yards, which he did after a sentry called up by the nurse had forcibly removed his only covering, a blanket, and had given him "one or two gentle prods" with his bayonet.

The behavior of the civilians was worse even than that of the military. The report summarizing, with much moderation, an overwhelming mass of evidence, says: "On all journeys without exception, whenever the train stopped—and halts were always long and frequent—a dense and highly hostile crowd was found on the platform, who surged round the carriages and trucks containing prisoners, threatening them with knives and revolvers and insulting them with the grossest of abuse. German officers often took an active part on these occasions." One scene in particular, at Aachen, September 2, is described by several witnesses. Here a mob of drunken Uhlans and railway employees was deliberately incited against the prisoners by a German colonel. Their behavior became so threatening that the train was saved from being rushed by the crowd only by being moved out of the station. Well dressed women were constantly prominent in these scenes, and often at wayside stations, rows of schoolchildren would be found drawn up, chanting choruses of abuse. In the long record of cruelty toward suffering and defenseless men, one kind of exception stands out. In several cases, though by no means in all, the guards in charge of the prisoners showed them what kindness they could, usually by procuring food and water. In some instances the food thus smuggled in was all that the prisoners got. The men who did these acts were nearly all in humble positions.

A party of British wounded was gathered at Mons and taken to the station where German cavalry, just arrived, were drawn up in two lines. The wounded were made to march through the lines, and were subjected to gross insults and ill treatment. Curses were hurled at them, the Germans spat on and kicked them. The men were struck with sabers and bayonets. Many men with crutches had these kicked from under their arms, and when they fell, the crutches were used to beat them. German officers with their men encouraged them, even to the extent of cursing them in German and English and in taking part in these cowardly assaults. In another case German soldiers prodded with bayonets and urinated on prisoners of the medical corps.

To physicians the cruelty of the German Red Cross nurses will be particularly revolting. At every railway station there was an elaborate installation of food and drink and medical appliances presided over by women wearing the Red Cross uniform. These showered attention on the German wounded, and would give food and drink to the French prisoners. For the British they had nothing but foul abuse or worse. "We saw some German Red Cross nurses," says one prisoner; "the only thing I remember about them is that some of them spat in our faces." When asked by a wounded officer for a glass of water one of these "ladies" burst out laughing and said, "Nothing for you English." They would show food to the starving prisoners and then remove it, calling the attention of the crowd and observing that it was "not for the swine." They would bring water and soup in cans and pour it out on the platform in front of the Englishmen. The women were extraordinarily venomous in preventing anything from reaching the prisoners, and their display of spite, their heartless cruelty, their profusion of gross insults were barbarous beyond all words. One officer tells how a woman of the Red Cross brought him a glass of water, spitting in it first. On rare occasions it would happen that a German officer would order one of these women to bring something for the prisoners, which she would do most unwillingly. At Coblenz a Red Cross woman, deceived by his red trousers, given him at a French hospital, which he happened to be wearing, handed a British officer a sandwich. She soon discovered her mistake and was careful to warn her companions. This persistent degradation of the Red Cross, universal emblem of charity in warfare, caused the deepest possible impression on the British prisoners.

It must be borne in mind that all this occurred early in the war, and has been reported only now because the evidence could not be taken until the prisoners had returned home. Since that time the treatment of British prisoners in Germany, though leaving much to be desired, has improved, for a very good reason. At the time of the atrocities the Germans were winning and did not contemplate the prospect that the British would have in their hands more prisoners than they were able to take from "the contemptible little army."

The Health of the Troops

In speaking on the army estimates in the House of Commons, Mr. Macpherson, undersecretary for war, gave some astounding figures on the purchases during 1917. Among the medical ones were 67,000,000 bandages, 2,000,000 ounces of quinin, 1,500,000 doses of antitoxin, and 4,700,000 pounds of cotton. He paid a tribute to the devotion of the Medical Corps. The very large number of casualties in this branch of the service in the commissioned ranks showed that it did not shirk its responsibilities or dangers. In the Napoleonic wars the percentage of deaths from disease was 97, and from death on the battlefield, 3. Even as late as the South African campaign there were 67,000 cases of disease admitted to hospital and over 8,000 deaths. Four times as many men died from disease in South Africa as there were cases in France up to the beginning of November last. Although, in a stationary army, epidemics of disease are most liable to break out, skill and medical science, care and forethought have made the incidence of disease in the British forces in France less than in the history of any other army in the world. In other theaters of war, such as Saloniki, conditions are not so satisfactory. In Macedonia in summer the climate is one of the most pestilential in the world, and malaria there is of the most malignant type. But the results of the hygienic measures taken have been remarkable. The amount of sickness in the Saloniki army in 1917 was reduced to two thirds of what it was in 1916, and the death rate to one third of that in 1916. The success and gallantry of the Army Medical Service has given it a place in the army which it has never held before. It has now been arranged that the term Lieutenant-General and Major-General shall be applicable to a surgeon serving with the forces. To no one should greater credit for the success of this branch of the service be given than to Sir Alfred Keogh.

Infant Mortality During the War

Contrary to what might be expected, infant mortality during the war has diminished. In the year 1914, which may be regarded as prewar, the rate for England and Wales was 105 deaths under 1 year per thousand births. In 1915 the rate rose to 110, which was probably due to the dislocation of habits produced by the war. But this rise was followed in 1916 by a fall to 91, the lowest figure ever recorded, the nearest approach being 95 in 1912. This remarkably good figure is generally attributed to the prosperity of the working class in consequence of high wages, diminution of employment, and a liberal scale of allowance for the families of soldiers. However, the figure has risen to 97 during 1917. This is probably due principally to some diminution of prosperity in consequence of the constant increasing cost of the necessities of life.

Association News

THE CHICAGO SESSION

Section on Miscellaneous Topics to Consider Reeducation and Rehabilitation of Disabled Soldiers

At its recent meeting the Council on Scientific Assembly arranged for meetings of the Section on Miscellaneous Topics, the subject to be taken up being the reeducation and rehabilitation of the disabled soldiers. Major Frank Billings, head of this division in the Surgeon-General's Office, has accepted the chairmanship of the section. The subject is one of great importance, especially to medical men. Further announcement will be made later.

Special General Meeting

In addition to the patriotic meeting which will be held on Thursday evening, June 13, and which will be addressed by men prominent in public affairs, there will also be a general meeting on Wednesday evening, June 12, at which eminent physicians who have been active in the medical military service of our nation and its allies will take part.

Section Meeting Places

The tentative arrangements for places of meeting are as follows:

Section on Practice of Medicine.—Banquet Room, Hotel Morrison.

Sections on Ophthalmology and on Laryngology, Otology and Rhinology.—Grand Ball Room and Red Room, respectively, Hotel La Salle.

Sections on Nervous and Mental Diseases and on Dermatology.—Ball Room and English Room, respectively, Blackstone Hotel.

The remaining Sections will be grouped, meeting in the Auditorium Theater, the Auditorium Hotel and the Congress Hotel. The theater will house in its main auditorium, the Section on Surgery, General and Abdominal, and in two smaller halls, the Sections on Genito-Urinary Diseases and on Gastro-Enterology and Proctology.

In the Auditorium Hotel, the Ball Room will be the meeting place of the Section on Pathology and Physiology, the Ladies' Parlor the meeting place of the Section on Pharmacology and Therapeutics, and the Section on Preventive Medicine and Public Health will meet in the banquet hall.

In the Congress Hotel, the Elizabethan Room will be the meeting place of the Section on Orthopedic Surgery and the Gold Room, the Section on Obstetrics, Gynecology and Abdominal Surgery; the Florentine Room, the Section on Diseases of Children, and the Green Room, the Section on Stomatology.

The Hotel Sherman will be the general headquarters where will be housed the Registration Bureau, the Information Bureau, the American Medical Association Branch Post-Office, as well as the Scientific and Commercial Exhibits.

In next week's issue the accommodations offered by these and the other hotels of Chicago for those who attend the annual session will be announced.

Marriages

Mary Huntting Robinson, M.D., late of Hackett Medical College, Canton, China, to Mr. Henry L. Lechtrecker of Rockville Center, Long Island, N. Y., at Ithaca, N. Y., January 1.

Lieut. Jacob Ralph Brobst, M. R. C., U. S. Army, Bloomsburg, Pa., on duty at Camp Devens, Ayer, Mass., to Miss Grace Zerher of Bloomsburg, Pa., at Ayer, Mass, February 27.

Lieut. Milton Valentine Miller, M. C., N. A., Columbia, Pa., of the One Hundred and Eighth Machine Gun Battalion, to Miss Claire Richards of Philadelphia, February 19.

William Franklin Coburn, M.D., Rhinebeck, N. Y., to Miss Nora Caroline Heinke of Bremen, Ind., March 1.

Samuel Mathewson D. Marshall, M.D., to Miss Ruth Heisler, both of Milford, Del., February 28.

William Arthur Strole, M.D., Norfolk, Va., to Miss Marie Kelly of Baltimore, February 27.

Earle Augustus Martin, M.D., to Miss Helen M. Wilmer, both of Cincinnati, March 6.

James Chasey, M.D., to Miss Lillie J. Heidl, both of Long Branch, N. J., February 24.

Deaths

Richard Hunt Brown, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1891; aged 55; a Fellow of the American Medical Association; associate professor of clinical laryngology, rhinology and otology in his alma mater; attending surgeon to the West Side Dispensary, ear, nose and throat department; a specialist on diseases of the ear, nose and throat; formerly professor of toxicology and materia medica in Northwestern College of Pharmacy; fell unconscious afterward swimming in the Central Y. M. C. A. pool, March 12, and died shortly afterward, from heart disease, it is believed.

Com. Remus Charles Persons, Medical Director, U. S. Navy (retired), Washington, D. C., New York University, New York City, 1872; aged 67; a Fellow of the American Medical Association; entered the Medical Corps of the Navy, March 5, 1872, and was retired, Dec. 28, 1912; in charge of the Naval Hospital, Cavite, and later ordered to duty on the U. S. S. *Baltimore,* and fleet medical officer of the Asiatic station; after in command of the Naval Hospital at Mare Island, Calif., and at Philadelphia; died in Columbus, Ga., March 3, from cerebral hemorrhage.

Seabury Bowen, M.D., Fall River, Mass.; Bellevue Hospital Medical College, 1867; aged 77; a member of the Massachusetts Medical Society; formerly corresponding secretary for the Massachusetts State Board of Health; city physician of Fall River from 1871 to 1875; a trustee of the State Workhouse of Bridgehampton from 1875 to 1882; a member of the staff of the Fall River Union Hospital ever since its establishment; died at his home, March 2, from heart disease.

John George Blake, M.D., Boston; Harvard Medical School, 1861; aged 80; a member of the Massachusetts Medical Society; visiting physician to the Boston City Hospital; consulting physician to Carney and St. Elizabeth's Hospital, and director of the South End National Bank; a surgeon of Volunteers during the Civil War; died at his home, March 4.

William Joseph Gremley Dawson, M.D., Eldridge, Calif.; New York University, New York City, 1867; aged 72; a Fellow of the American Medical Association; superintendent of the California Home for Feebleminded Children since 1902; died at his home, March 4.

Homer L. Clark, M.D., Washington, Pa.; University of Maryland, Baltimore, 1885; aged 54; a well-known newspaper writer; at one time president of the Washington School Board; is said to have committed suicide by strangulation at the Dixmont (Pa.) Hospital for the Insane, February 25.

Luther Titus Palmquist, M.D., Chicago; Barnes Medical College, St. Louis, 1911; aged 37; formerly a Fellow of the American Medical Association; formerly a practitioner of Sioux City, Iowa; died at his home, March 7, from tuberculosis.

George Earl Hull, M.D., Mantua, Ohio; Cleveland-Pulte Medical College, Cleveland, 1901; aged 39; a member of the Ohio State Medical Association; died in Grace Hospital, Cleveland, March 1, from paralysis.

Walter Alva Mewborn, M.D., Bells, Texas; Vanderbilt University, Nashville, Tenn., 1881; aged 59; formerly a Fellow of the American Medical Association; died at his old home in Macon, Tenn., March 1, from peritonitis associated with carcinoma of the stomach.

Eli Percival Flint, M.D., Rockville, Conn.; Yale University, New Haven, Conn., 1879; aged 68; a Fellow of the American Medical Association, and secretary of the Tolland County Medical Society; health officer for the town of Vernon; died at his home, January 31, from pneumonia.

Died in the Service
Capt. Clarence D. Bradley, M.D., M. R. C.,
U. S. Army, 1880-1918
(*See The Journal, Feb. 23, 1915, p. 556.*)

William Butler Prather, M.D., Seale, Ala.; Atlanta (Ga.) Medical College, 1874; aged 71; formerly a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, February 19, from cerebral hemorrhage.

Eugene Chase Peck, M.D., Hyde Park, Mass.; University of Vermont, Burlington, 1869; aged 72; formerly a member of the Massachusetts Medical Society; captain of United States Volunteers during the Civil War; died at his home, February 2, from cerebral hemorrhage.

Lieut. Frank Harris Gardner, M.D., M. R. C., U. S. Army, Brooklyn; Jefferson Medical College, 1916; aged 28; on duty at the Government Reservation, Hoboken, N. J.; formerly on duty at Fort Oglethorpe, Ga.; died at the home of his aunt in Brooklyn, February 24, from pneumonia.

Harry Varley Bingham, M.D., Madison, N. J.; New York Homeopathic Medical College, New York City, 1905; aged 41; formerly a member of the staff of the Middletown State (N. Y.) Homeopathic Hospital; died in a sanatorium in Morristown, N. J., February 24.

Ora N. Latham, M.D., Bolivar, N. Y.; University of Maryland, Baltimore, 1882; aged 62; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died at his home, February 14, from heart disease.

James H. Lampton, M.D., Louisville, Ky.; University of Louisville, Ky., 1865; aged 62; formerly a member of the Kentucky State Medical Association; for many years a practitioner of Springfield, Ky.; died at his home, February 25, from tuberculosis.

Albert Joseph Ainey, M.D., Brooklyn, Pa.; Yale University, New Haven, Conn., 1867; aged 80; formerly a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War, died at his home, February 22, from cerebral hemorrhage

William F. Mills, M.D., Worcester, Mass.; Rush Medical College, 1887; aged 61; formerly a practitioner of South Bend, Ind., and physician of St. Joseph County; died in St. Johnsbury, Vt., February 15, from cerebral hemorrhage

Joseph Francis Gill, M.D., Madison, Wis.; Rush Medical College, 1886, aged 59; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin, died at his home, February 24, from pneumonia.

James Taylor Henry, M.D., Bentonville, Ark.; University of Nashville, Tenn., 1873, aged 70; a Fellow of the American Medical Association, physician and surgeon to the Eagle Lumber Company; died at his home, February 27.

J. P. Sparrow, M.D., Oak Dale, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; aged 65; for nearly twenty years a practitioner of Hannibal, Mo.; died at his home, February 23, from pneumonia.

David James Odell Truitt, M.D., Pocomoke City, Md.; University of Maryland, Baltimore, 1857; aged 81; contract surgeon in the Army during the Civil War; died at his home, February 22, from heart disease.

Y. P. Barton, M.D., Cushing, Texas; Memphis (Tenn.) Hospital Medical College 1903; aged 39; a member of the State Medical Association of Texas; died at his home, about February 20, from septicemia.

John Hartridge Livingston, M.D., Jacksonville, Fla.; University of Maryland, Baltimore, 1878; aged 57; a member of the Florida Medical Association; died at his home, December 22, from cerebral hemorrhage.

Francis Bilderback, M.D., Salem, N. J.; University of Pennsylvania, Philadelphia, 1870; aged 72; a member of the Medical Society of New Jersey; died at his home, February 23, from pneumonia

Harvey Newton Fox, M.D., Fresno, Calif.; Miami Medical College, Cincinnati, 1866; aged 77; formerly a practitioner of Tipton, Ind.; died at the home of his son in Fresno, from heart disease.

Died in the Service
Lieut. Frank Harris Gardner, M.D., M. R. C.,
U. S. Army, 1890-1918

Leonard P. Waterhouse, Spokane, Wash. (license, Washington, 1890); aged 85; a practitioner since 1855; first coroner of Spokane County, Wash.; also a druggist; died at his home, February 28.

Celia Williams Taylor Goodman, M.D., San Diego, Calif.; University of Michigan, Ann Arbor, 1880; aged 58; a Fellow of the American Medical Association; died at her home, January 27, from erysipelas.

Elmer William Reinhart, M.D., Muskegon, Mich.; Starling Medical College, *Columbus, Ohio*, 1884; aged 55; also a graduate in theology; died at his home, February 10, from cerebral hemorrhage.

Alfred M. Townsend, M.D., Kenoma, Mo.; Ensworth Medical College, St. Joseph, 1893; formerly a member of the Missouri State Medical Association; died at his home, February 24.

Horace Ladd, M.D., Philadelphia; Jefferson Medical College, 1848; formerly a member of the Medical Society of the State of Pennsylvania; aged 91; died at his home, February 24.

***John Hutchens,* M.D.,** Cheshire, N. Y.; University of Buffalo, N. Y., 1871; aged 68; a member of the Medical Society of the State of New York; died at his home, February 23.

William Bixby Hopkins, M.D., Cumberland, Wis.; Bowdoin Medical School, Brunswick, Me., 1881; aged 63; a Fellow of the American Medical Association; died at his home, February 11.

Americus Miesse, M.D., Lima, Ohio; Cincinnati College of Medicine and Surgery, 1871; aged 69; died at the home of his daughter in Sidney, Ohio, February 26, from cerebral hemorrhage.

Peter Livy Schuyler, M.D., Glendale, Calif.; University of Michigan, Ann Arbor, 1862; aged 87; for thirty-five years a practitioner of Evansville, Ind.; died at his home, February 23.

Azuba Doty King, M.D., Des Moines, Iowa; State University of Iowa, Iowa City, 1876; aged 81; a member of the Iowa State Medical Society; died at her home, March 8.

Benjamin Franklin Hamilton, M.D., Roseville, Ill.; Medical College of Ohio, *Cincinnati*, 1867; aged 79; died in the Burlington Hospital, December 18, from senile debility.

Howard Fackenthal, M.D., Easton, Pa.; University of Pennsylvania, Philadelphia, 1876; aged 64; died in his apartments in Easton, February 25, from heart disease.

Louis Jeschinsky, M.D., Mount Vernon, N. Y.; University of Halle, Germany, 1869; aged 74; died in the Westchester County Hospital, East View, N. Y., February 21.

Peter Bakke, M.D., Grantsburg, Wis.; University of Minnesota, Minneapolis, 1892; aged 52; died in St. Luke's Hospital, St. Paul, February 27, from heart disease.

Irving W. Norris, M.D., Corunna, Mich.; Michigan College of Medicine and Surgery, Detroit, 1901; aged 52; died suddenly at Sault Ste. Marie, Mich., February 26.

Jesse C. Eldridge, Chattanooga, Tenn. (license, Tennessee, 1889); aged 71; a veteran of the Civil War; died in a sanatorium in Chattanooga, February 26.

Leonard F. Henley, M.D., Lakeland, Fla.; Atlanta (Ga.) Medical College, 1888; aged 69; died at his home, December 27, from pernicious anemia.

W. P. Harris, Centerville, Ohio (license, Ohio, years of practice, 1896); aged 80; died in Centerville, *January 30, from* cerebral hemorrhage.

Noah Elliott, Columbus, Ohio (license, Ohio, 1896); aged 92; *a colored* practitioner; died at his home, February 27, from senile debility.

Henry S. Willard, M.D., Manhattan, Kan.; University Medical College, Kansas City, Mo., 1892; aged 50; *died* at his home, February 23.

Giuseppe Ferro, M.D., New York City; University of Palermo, Sicily, 1876; aged 69; died at his home, February 10, from myocarditis.

William Henry Gifford, M.D., Cleveland; Hahnemann Medical College, 1891; aged 48; *died at his home*, February 20, from pneumonia.

Lancaster F. Scott, M.D., Chicago; *Bellevue Hospital* Medical College, 1882; aged 67; died at his home, March 4, from gastric ulcer.

Fletcher F. Anderson, M.D., Atlanta, Ga.; Hospital Medical College, Eclectic, 1909; aged 52; died at *his home*, February 22.

Leonard Kelly, M.D., Olyphant, Pa.; Bellevue Hospital Medical College, 1866; aged 75; died at *his home*, February 27.

The Propaganda for Reform

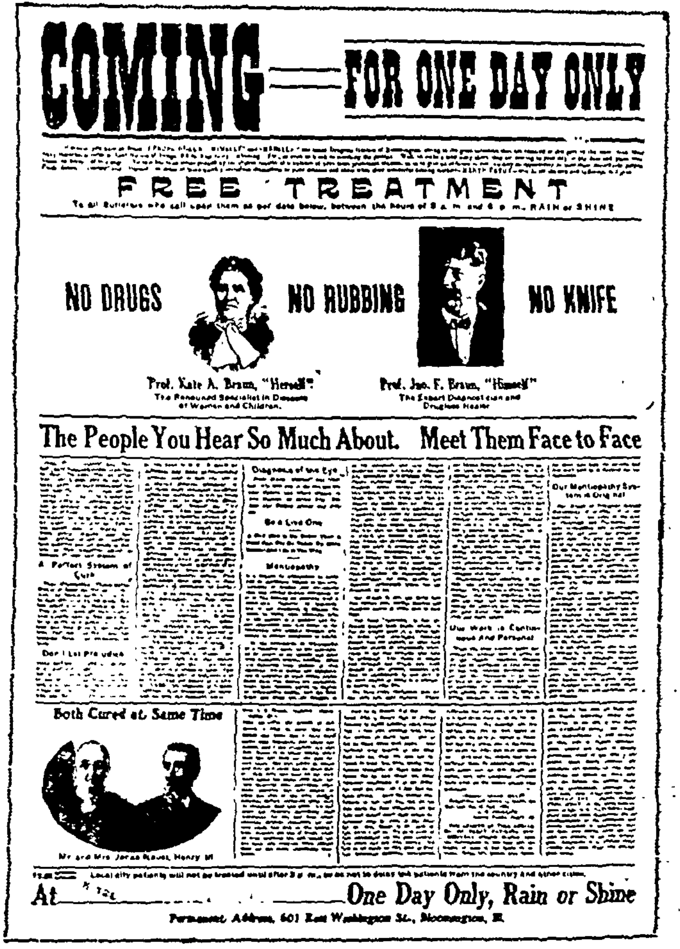
In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the *Association* Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose *Medical Fraud on the Public and on the Profession*

JOHN F. AND KATE A. BRAUN—QUACKS

A Brief History of Some Persistent Fakers of the "Divine Healer" Type

From the publishers of the *News-Times* of Goshen, Ind., The Journal received the following inquiry:

> "We have received from 'The Christian Health Institute,' of Peru, Ind., a 25-inch display advertisement, setting forth the healing powers of one 'Bonita,' an individual who claims an ability to cure a wide range of bodily ills without the use of medicine or instruments.
>
> "'Bonita' is scheduled to appear in Goshen on February 21, but as we have for several years past maintained an attitude of hostility toward fake medical practitioners, when we know them to be such, the advertisement of this outfit will not appear in our paper, even though we hold a check to cover cost of same, unless you are prepared to give it a clean bill of health.
>
> "If you have any information concerning 'Bonita' please let us have it."



COMING—FOR ONE DAY ONLY

FREE TREATMENT

To all Sufferers who call upon them at per date below, between the hours of 9 a. m. and 6 p. m., RAIN or SHINE

NO DRUGS NO RUBBING NO KNIFE

Prof. Kate A. Braun, "Herself"

The Renowned Specialist in Diseases of Women and Children.

Prof. Jno. F. Braun, "Himself"

The Expert Diagnostician and Drugless Healer

The People You Hear So Much About. Meet Them Face to Face

Diagnosis of the Eye

Be a Live One

A Perfect System of Cure

Don't Let Prejudice

Our Work is Continuous And Personal

Our Mentiopathy System is Original

Both Cured at Same Time

Mr and Mrs Jonas Bauer, Henry Ill

Local city patients will not be treated until after 3 p. m., so as not to delay the patients from the country and other cities.

At ________________ One Day Only, Rain or Shine

Permanent Address, 601 East Washington St., Bloomington, Ill.

Greatly reduced reproduction of one side of a placard used by the Brauns in 1908. The original measured 24 inches by 18 inches. At that time the Brauns were using their own names.

As the Propaganda Department files failed to show any record either of the "Christian Health Institute" or of "Bonita," an investigation was made. As a result, it appears that "Bonita" and the "Christian Health Institute" are the latest recrudescence of the John F. Braun's brand of quackery.

PROFS. BRAUN—HIMSELF AND HERSELF

The history of Braun and his wife, Kate A. Braun, makes an interesting chapter in the annals of quackdom. In 1898, Braun who was then a photographer at Red Bud, Ill., took a "course" in magnetic healing. Soon after embarking on this enterprise the Illinois State Board of Health issued an authorization for his prosecution and for a while Braun discontinued his "practice." Later he seems to have practiced in Sparta and then in Nashville, Ill. In August, 1903, he was prosecuted at Nashville and was fined $100 and costs and, on his failure to pay, was sent to jail. He appealed but later paid his fine before the case came to the higher court. In March, 1904, the federal authorities began actions against Braun for sending obscene letters through the mails. He was eventually fined $500 and, on failing to pay, was confined in the St. Clair County Jail for six months. In October, 1905, he appeared at Nokomis and Hillsboro, Ill., where suit was promptly begun against him by the State Board of Health and he was again sent to jail. In January, 1906, he was sentenced to the county jail at Hillsboro, Ill., for thirty days for violating the Medical Practice Act. All this time Braun and his wife operated chiefly under their own names as "Prof. John F. Braun, Himself and Prof. Kate A. Braun, Herself."

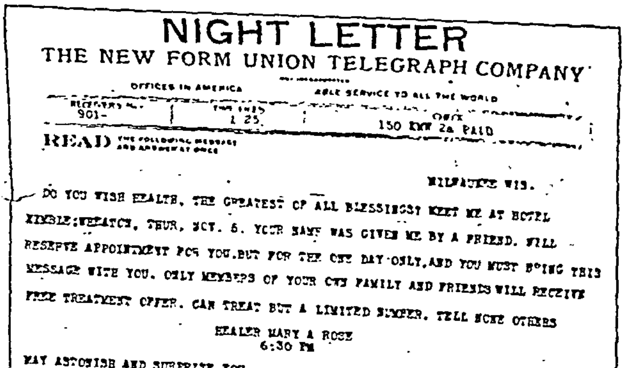
In October, 1909, the federal government issued a fraud order against the Brauns (who were then working from Bloomington, Ill., Indianapolis and Greenfield, Ind.) for obtaining money through the mails by means of false and fraudulent methods. As recorded in the memorandum to the Postmaster-General, the scheme consisted in advertising and selling an alleged treatment for the cure of all diseases without the use of drugs, surgery or even seeing the patient. The "treatment" was claimed to be by telepathy. Investigation proved that the "scheme was devised and operated for the sole purpose of defrauding the sick and afflicted." At the same time the Brauns were indicted on criminal charges and Braun was sentenced to a year and a day in the Leavenworth Penitentiary. The case against Mrs. Braun was *nolle prossed* because of the large number of children she had.

After getting out of prison, Braun seems to have done business for a while under the alias "Rev. D. R. Schiller" with headquarters at Rockford, Ill. In January, 1913, Schiller was mobbed at Jerseyville, Ill., because, after advertising that his "treatments" were "free" he refused to treat two patients who lacked *money*. The papers, in reporting the case at the time, said that Schiller had sold over a hundred "blessed" handkerchiefs to patients in Elgin, Ill. The handkerchiefs were to be placed on the affected portions of the anatomy and were supposed to effect a cure!

In March, 1913, Braun, as "Schiller," was on trial at Marion, Iowa, on the charge of violating the Medical Practice Act. The jury quickly brought in a verdict of guilty.

In June, 1913, the Indiana papers recorded the arrest of "Schiller" at Greencastle, Ind., where he was doing a thriving business. He was *not only* fined but also was made to refund all of the money he had taken from people of that community.

In November, 1913, we find "Schiller" pleading guilty to the charge of practicing medicine without a license in Ionia, Mich. He was placed on probation for two years after promising to give up quackery and return to his home in Rockford, Ill.



NIGHT LETTER
THE NEW FORM UNION TELEGRAPH COMPANY

OFFICES IN AMERICA
CABLE SERVICE TO ALL THE WORLD

901- 1 25. 150 KMW 2A PAID

READ THE FOLLOWING MESSAGE AND ANSWER AT ONCE

MILWAUKEE WIS.

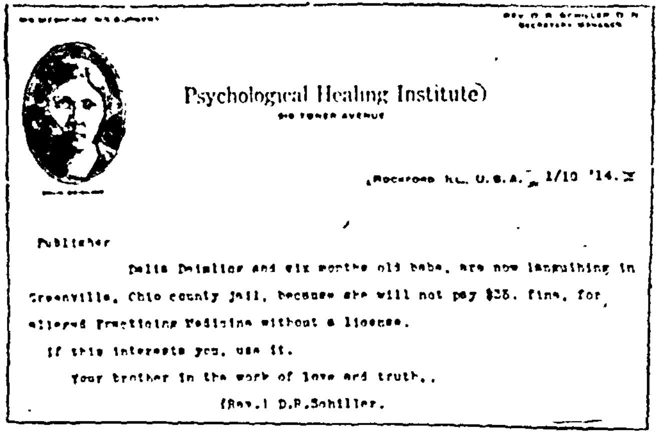
DO YOU WISH HEALTH, THE GREATEST OF ALL BLESSINGS? MEET ME AT HOTEL KIMBLE;WHEATCH, THUR, OCT. 6. YOUR NAME WAS GIVEN ME BY A FRIEND. WILL RESERVE APPOINTMENT FOR YOU.BUT FOR THE ONE DAY ONLY,AND YOU MUST BRING THIS MESSAGE WITH YOU. ONLY MEMBERS OF YOUR OWN FAMILY AND FRIENDS WILL RECEIVE FREE TREATMENT OFFER. CAN TREAT BUT A LIMITED NUMBER. TELL NONE OTHERS

HEALER MARY A ROSE
6:30 PM

MAY ASTONISH AND SURPRISE YOU.

One scheme used by the Brauns for getting victims was to send out an imitation telegram to individuals whose names they had obtained offering free treatment; needless to say the "free treatment" cost money. Above is a miniature reproduction of one of the fake telegrams.

In January, 1914, Kate A. Braun appears in the lime-light again under one of her numerous aliases, this time as "Delia Deimling." She was arrested at Greenville, Ohio, on the charge of violating the Medical Practice Act. The newspapers said that "Delia Deimling," while advertising that she would take nothing for her services until a cure had been effected, had been taking money and that some of her dupes were responsible for her arrest. She was sent to the local county jail in default of a $300 bond for her appearance. This was on Jan. 9, 1914. On January 10, Braun, under his alias "Rev. D. R. Schiller," was sending out the following letter to such newspaper publishers as had participated in the profits of the Braun quackery:



Psychological Healing Institute
TONER AVENUE

Rockford Ill. U.S.A. 1/10 '14.

Publisher

Delia Deimling and six months old babe, are now languishing in Greenville, Ohio county jail, because she will not pay $25. fine, for alleged practicing medicine without a license.

If this interests you, use it.

Your brother in the work of love and truth,,

(Rev.) D.R.Schiller.

In June, 1914, the federal government again intervened and extended the fraud order that had been issued in 1909 to cover the new names under which John F. Braun and his wife, Kate A. Braun, were then operating from Rockford, Ill. Some of these names were (1) "The Psychological Healing Institute," (2) "Rev. D. R. Schiller," (3) "Hulda De Muth," (4) "Delia Deimling" and (5) "Madame De Muth Deimling."

On Nov. 3, 1914, the Rockford, Ill., *Star* had an item about "D. R. Schiller, the Toner Street healer," to whom it referred as "the manufacturer of divine balm and blessed handkerchiefs." It seems that Schiller had come back to Rockford after a trip to Janesville with a supply of whiskey in his pockets and a not insignificant amount of the same substance in his anatomy. After supper he started to "clean out" a local barber shop against whose owner he had long nursed a grudge. The cleaning out process was accomplished by means of bricks and a revolver. Braun ("Schiller") was lodged in jail and before he had a chance to get out was taken in charge by the United States authorities who had indicted him and his wife on charges of fraud.

At the trial of the Brauns before Judge Landis a touch of lightness was given by the evidence of a farmer who wanted to get into the "healing business" and had applied to the Brauns for a job. Braun, it seems, insisted that his assistant should have a beard, an appendage to which the farmer's "best girl" objected. The district attorney presented in evidence a letter from Braun to the would-be assistant, reading:

> "Yes, by all means, raise that Van Dyke for I would not think of placing you in office without it. It will make you look ten years older. That counts for much in this business. Never mind what your girl says about it, for you must choose between the girl and the job. The more you force it the sooner the position will be open to you. Mioz wants to come back but I will stick to the proposition I made to you, provided your physiognomy will be in proper shape to look the patients in the eye and see how much money they have in their pockets. Yours,
>
> Rev. Dr. Schiller, Himself."

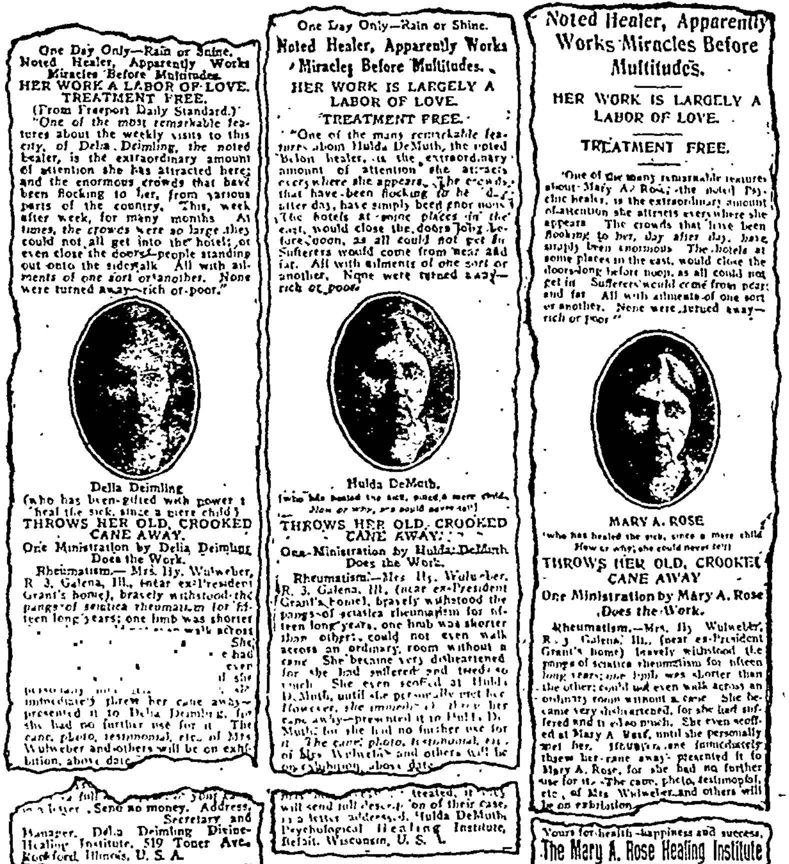
One of the witnesses who appeared for the government was a merchant from Appleton, Wis., who testified that he had paid Braun $10 for an "absent treatment" and a "blessed handkerchief." After discovering that Braun was a faker he refused to accept the handkerchief and demanded *that his* money be refunded. Braun very pertinently replied, by mail:

> "If I should return your money, every cheap screw in the country would demand a refund."

As a result of this trial, John F. Braun on Nov. 12, 1914, was sentenced to the federal penitentiary for four years, in spite of the plea of his attorney, George W. Popham of Chicago, that Braun had admitted his guilt and had promised on his release to seek legitimate means of a livelihood. Kate A. Braun was acquitted on the grounds that she had been influenced and coerced by Braun and also because she was the mother of ten children.

In October, 1916, the Ohio newspapers reported that "Mary A. Rose" of Peru, Ind., was arrested in Springfield, Ohio, charged with practicing medicine without a license. "Mary A. Rose" was one more alias of Kate A. Braun. She pleaded not guilty and was released on $100 bail. When the case was called Mrs. Braun failed to appear and her bond was forfeited.

Braun was released from the United States Penitentiary at Leavenworth, Dec. 10, 1917, after serving only slightly more than three of his four years sentence. Now, in 1918, it seems that Braun is operating his schemes under still another name—"Bonita."



One Day Only—Rain or Shine.
Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK A LABOR OF LOVE.
TREATMENT FREE.
(From Freeport Daily Standard.)

"One of the most remarkable features about the weekly visits to this city, of Delia Deimling, the noted healer, is the extraordinary amount of attention she has attracted here; and the enormous crowds that have been flocking to her, from various parts of the country. This, week after week, for many months. At times, the crowds were so large they could not all get into the hotel; or even close the doors—people standing out onto the sidewalk. All with ailments of one sort or another. None were turned away—rich or poor."

Della Deimling
(who has been gifted with power t heal the sick, since a mere child)
THROWS HER OLD, CROOKED CANE AWAY.
One Ministration by Delia Deimling Does the Work.

Rheumatism.—Mrs. Hy. Walweber, R 3, Galena, Ill., (near ex-President Grant's home), bravely withstood the pangs of sciatica rheumatism for fifteen long years; one limb was shorter [illegible] walk across [illegible] She [illegible] e had [illegible] even [illegible] il she personally [illegible] immediately threw her cane away—presented it to Delia Deimling, for she had no further use for it. The cane, photo, testimonial, etc., of Mrs. Walweber and others will be on exhibition, above date.

[illegible] full [illegible] your [illegible] in a letter. Send no money. Address, Secretary and Manager, Delia Deimling Divine-Healing Institute, 519 Toner Ave., Rockford, Illinois, U. S. A.

One Day Only—Rain or Shine.
Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK IS LARGELY A LABOR OF LOVE.
TREATMENT FREE.

"One of the many remarkable features about Hulda DeMuth, the noted Beloit healer, is the extraordinary amount of attention she attracts everywhere she appears. The crowds that have been flocking to her day after day, have simply been enormous. The hotels at some places in the east, would close the doors long before noon, as all could not get in. Sufferers would come from near and far. All with ailments of one sort or another. None were turned away—rich or poor.

Hulda DeMuth.
(who has healed the sick, since a mere child. How or why, she could never tell)
THROWS HER OLD, CROOKED CANE AWAY.
One Ministration by Hulda DeMuth Does the Work.

Rheumatism.—Mrs. Hy. Walweber, R. 3, Galena, Ill. (near ex-President Grant's home), bravely withstood the pangs of sciatica rheumatism for fifteen long years, one limb was shorter than other; could not even walk across an ordinary room without a cane. She became very disheartened for she had suffered and tried so much. She even scoffed at Hulda DeMuth, until she personally met her. However, she immediately threw her cane away—presented it to Hulda DeMuth, for she had no further use for it. The cane, photo, testimonial, etc., of Mrs. Walweber and others will be on exhibition, above date.

[illegible] treated, it [illegible] will send full description of their case, in a letter addressed, Hulda DeMuth Psychological Healing Institute, Beloit, Wisconsin, U. S. A.

Noted Healer, Apparently Works Miracles Before Multitudes.
HER WORK IS LARGELY A LABOR OF LOVE.
TREATMENT FREE.

"One of the many remarkable features about Mary A. Rose, the noted Psychic healer, is the extraordinary amount of attention she attracts everywhere she appears. The crowds that have been flocking to her, day after day, have simply been enormous. The hotels at some places in the east, would close the doors long before noon, as all could not get in. Sufferers would come from near and far. All with ailments of one sort or another. None were turned away—rich or poor."

MARY A. ROSE
(who has healed the sick, since a mere child. How or why, she could never tell)
THROWS HER OLD, CROOKED CANE AWAY
One Ministration by Mary A. Rose Does the Work.

Rheumatism.—Mrs. Hy Walweber, R. 3, Galena, Ill., (near ex-President Grant's home) bravely withstood the pangs of sciatica rheumatism for fifteen long years; one limb was shorter than the other; could not even walk across an ordinary room without a cane. She became very disheartened, for she had suffered and tried so much. She even scoffed at Mary A. Rose, until she personally met her. However, she immediately threw her cane away—presented it to Mary A. Rose, for she had no further use for it. The cane, photo, testimonial, etc., of Mrs. Walweber and others will be on exhibition.

Yours for health, happiness and success,
The Mary A. Rose Healing Institute
Milwaukee, Wis.

Photographic reproductions (reduced) of three advertisements issued by Braun advertising Kate A. Braun under some of *her aliases*. As "Delia Deimling" the Brauns operated from Rockford, Ill., under the name of "Delia Deimling Divine Healing Institute"; from Beloit, Wis., they worked as the "Hulda De Muth Psychological Healing Institute," and from Milwaukee they conducted the "Mary A. Rose Healing Institute." Mrs. Braun, it will be noticed, went by all three of these names—and several others.

It is pertinent to add that the *News-Times* of Goshen, Ind., after hearing from the Propaganda Department, refused the advertisement of "Bonita." The people of Goshen and vicinity are to be congratulated on having a newspaper that holds the public health in higher esteem than the dollars of the quack.

Rats.—As a not inconsiderable feature of war economy and for the saving of food products especially, the Department of Agriculture calls attention to the loss of foodstuffs through the agency of rats amounting, as estimated, to over $200,000,000 annually. The systematic destruction of rats is urged on every one, and in a campaign for this purpose small posters are being distributed by the department setting forth the loss of food through rats and offering to supply practical methods for their destruction.

Correspondence

"SWOBODA'S 'CONSCIOUS EVOLUTION'"

To the Editor:—In the history of medicine and surgery, especially of the Egyptians and the old Hellada, exercise or physical culture went hand in hand with the healing arts for centuries up to the present so-called modern education. As believers in healthy, strong, proper living and of all systemic efforts of development of our bodies and minds, you cannot blame us if we always welcome your articles in the Propaganda for Reform department justly attacking quackery, pseudo-science, *et tuti quanti*. In the last issue you gave us the best in regard to the humbugs in advertising of so-called systems of gymnastics, home physical culture, etc. Swoboda's "Conscious Evolution," his daring and all his nonsense with all the refinement for selling was known to us for years and since 1890 as he started to "humbug" the others in Omaha, as the active member of our gymnastic association of Sokols. He soon found out that he could not stay with us and went finally to Chicago, Washington and New York. Right here he connected his advice of a medical character, on the mail-order plan, with a "Course" or six lessons of simple exercise, free calisthenics, as he learned them in our gymnasiums or he is selling, for $20, our groups of selected exercises which have been used in our schools since 1862 as his "*original wonderful discovery*." We have exposed this and similar concerns in our paper many times and congratulate you on your article in the same direction. Will you be kind enough to allow us to translate the article on this Swoboda business, which was accepted even in the advertising columns of the best of our magazines, not only to the detriment of the pocketbooks of their readers, but also with all the dangers of quackery to their health.

Dr. J. Rudis-Jicinsky.

Editor, *Sokol Americky*, Chicago.

HENRY BACHMAN STEHMAN

To the Editor:—In The Journal, February 23, you published an obituary of Dr. Henry B. Stehman of Los Angeles. It was very brief, and I fear that you did not do him justice. May I add an appreciation:

Dr. Henry Bachman Stehman was a modest gentleman and yet a great man whose career as a citizen, physician and philanthropist was unique. His life calendar was brief: Born 1852; graduated Lebanon Valley College, 1873, receiving there his A.M. later; Universities of Leipzig and Brussels, 1873-1875; M.D., Jefferson, 1877. Internship in Blockley Hospital; married Miss Elizabeth Miller, 1881; superintendent, Presbyterian Hospital, Chicago, 1884, and retired by sickness, 1899. Moved to Pasadena. There he worked, handicapped by physical suffering, and died its most useful citizen.

He was a man of vision, and whatever he undertook he did. He had a constructive mind, a genius for organization, which found scope in two hospitals, in a great church building in Pasadena, and finally in a monument to his zeal for service, La Vina, a sanatorium for the tuberculous.

As a hospital manager he was superb, and the Presbyterian received through him many gifts—endowments of beds, rooms and wards, and bequests of large amount.

He chiefly designed the interiors of the numerous buildings of the Pasadena Hospital, and assisted in their construction. He sought and secured large gifts to this hospital.

La Vina was his greatest work. On a farm near Pasadena have arisen some eighteen buildings for 100 patients. The farm and all the buildings were the willing gift of those who believed in the work and in him.

It was his ambition to make a haven for at least a few of the many consumptives who walk the streets as long as they can—and walk in loneliness. And this he nobly did.

For ten years, amid an exacting practice, he gave himself to this service as a labor of love, refusing all material rewards—even declining gifts for his personal comfort.

For eleven years he was a successful teacher in Rush College, finally as assistant professor of gynecology. He was an expert diagnostician and a resourceful surgeon. He had the fine art of helping the sick without irritating them.

He had a genius for raising money for a good cause, and did it without annoying people. He seldom asked for money; rather his friends enthused with him over what money could do for a good cause.

His religion he took more seriously and with less parade than any other man I ever knew. His relations with others were kindly, unselfish and helpful. His purposes were too serious for him to waste energy over trifles (which he took rather humorously). The strength of his unobtrusive personality, like a rich perfume, touched the spirits of those about him for their comfort and strength.

His life was consecrated to the weal of the sick and needy of all classes, of all religions and no religion. He respected the sincere opinions of others; he was beloved of all who knew him and of him; and in his final agony he had the hopes and prayers of the whole community.

Norman Bridge, M.D., Pasadena, Calif.

A PLEA FOR A RATIONAL SYSTEM OF INSTRUCTION IN ANATOMY

To the Editor:—During the past three months, while conducting a course for military surgeons at the Post-Graduate Medical School and Hospital dealing with the surgery of nerves and tendons, I was struck by the students' ignorance of the simplest elements of anatomy. Their ignorance was all the more surprising because they represented an unusually intelligent, alert group of men, many of whom were surgeons of standing. It was interesting to see how they welcomed a chance to study anatomy when presented in a simple form, and how easily they acquired a practical working knowledge of all the important tendons and peripheral nerves during the two weeks of the course. On talking the matter over with them I came to the conclusion that the method of teaching anatomy current in our medical schools is to a large extent responsible for their anatomic ignorance. As one man put it, "I was compelled to digest 1,500 pages of Gray's Anatomy in eight months, and my anatomic digestion has suffered ever since."

The teaching of anatomy in the medical school should, to my mind, not rest in the hands of a specialist versed only in the science of anatomy; but the teacher should be a man who, in addition to his anatomic knowledge, is skilled in the application of anatomic data to practical medical problems. The medical student, with rare exceptions, is to be trained not as an anatomist but as a physician, and only the physician can have a sufficiently broad point of view to realize which anatomic facts are essential and which are to be considered encumbrances. For the anatomist, particularly one interested in the comparative study of vertebrates, each detail of the skull bones has an intense significance. A scientist of this type ought to be associated with every medical school as a leader of research. For the student, however, the exact configuration of the bones of the skull is as nonessential as a knowledge of the sutures of the bones of the turtle's skull. Emphasis of a nonessential of this type serves to distract his attention from those important data which he should have at his fingers' tips during his entire medical life. Because of this lack of emphasis, all anatomy becomes jumbled up in his mind, and he forgets the important together with the unimportant.

As one glances at the huge volumes which at present represent our knowledge of human anatomy—the detailed system of Poirier and Charpy, the eight volume edition of Rauber and Kopsch, or even the somewhat more modest English and American anatomies—one must realize that only by the most careful and critical sifting can the essentials be presented in cogent, logical form to the medical student. Instead of this, however, we use Gray as a textbook, and our best quiz masters stimulate a false pride among their students in making them vie with one another in their ability to recite the huge volume by heart. Naturally, knowledge rammed down by such a method is bound to produce the indigestion of which my postgraduate student complained.

Heterodox as these views may sound to some, they will, I feel sure, find response not only among the afflicted medical students but also among teachers of anatomy who, largely because of a lack of a suitable textbook, find it difficult to cope with the problem of presenting anatomy in such a way as to make it interesting and assimilable.

It is particularly to these teachers that I appeal, to those men who, appreciating the value of an anatomic knowledge in the accurate practice of medicine, wish to give their students the thorough equipment indispensable for their future work.

Might it not be possible with their cooperation to evolve a textbook of anatomy which should be thorough and yet omit the unimportant, clear and yet not too detailed, a book which the average medical student could absorb fully and retain as a basis for his future diagnostic and therapeutic work? A book of this type should not, of course, attempt to replace the complete system of anatomy, which should be present as a reference work on every student's shelf.

Leo Mayer, A.M., M.D., New York.

CONTRIBUTIONS FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—I beg to acknowledge further contributions of money for the aid of the civilian physicians in Belgium and France as they may be able to return to their devastated homes, and also of instruments which will be of great use to them, for they will have absolutely nothing left. The Germans have stolen it all. The door is still open for others to help.

W. W. Keen, M.D.

1729 Chestnut Street, Philadelphia.

SUBSCRIPTIONS IN CASH

Dr. Sanford Blum, San Francisco	$ 5
Dorchester Medical Club, Dorchester Mass.	10
Lewellys F. Barker Society for the Study of Medicine, Fairmont, W. Va., through Dr. J. W. McDonald	10
Mr. Joseph G. Rosengarten, Philadelphia, a tribute to Madame Depage	100
	$125

INSTRUMENTS

Miss Louise Herring, Philadelphia, a fine medicine case nearly 100 years old, Dr. McDonald Watkins, Natchez, Miss.; Dr. E. F. Meschter, Olean, N. Y.; Dr. Edgar F. Kiser, Indianapolis; Dr. F. B. Fuller, Pawtucket, R. I.; Dr. A. C. Jordan, Pine Bluff, Ark.; Dr. Harold B. Wood, Charleston, W. Va.; Dr. B. G. R. Williams, Paris, Ill.; Dr. W. A. Rowell, Trinity Center, Calif.

In addition to this Messers Charles Lentz & Sons not only have put in order and carefully packed all of the instruments forwarded, but in the last case they contributed a large number of instruments from their own stock.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CLAUDIUS' STAIN FOR PROTOPLASM AND CILIA OF BACTERIA

To the Editor.—In The Journal, March 2, 1918, p. 661, Abstract 92, mention is made of Claudius' staining technic for bacteria. Can you furnish me with the technic?

Lieut. V. M. Jared, M. R. C., Base Hospital, Fort Riley, Kan.

To the Editor.—I am very much interested in the brief reference on the staining of protoplasm for bacteria, abstracted from *Hospitalstidende*, as given in The Journal, March 2, 1918, p. 661. As I do not have access to the journal in question, I should be pleased to learn of the details of the method of staining referred to.

Henry Albert, M.D., Iowa City, Iowa.

Answer.—The fixation is done by heat in a sterilizer. The flame is lighted after the specimen has been placed in the sterilizer, and the temperature is gradually brought up to 110 C. The specimen is laid on a piece of filter paper, and another is placed over it. The sterilizer must be dry, as any steam would destroy the specimen. The fixation takes about half an hour; the specimen is taken out when 110 C. is reached. Once cooled, the stain is applied at once. The stain consists of 20 c.c. of a 1 per cent. aqueous solution of chromic acid into which are stirred 0.5 c.c. of freshly prepared anilin water and 10 drops of glacial acetic acid. The anilin water is made by stirring one part of anilin into 25 parts water and filtering through a moist filter. The specimen is placed in the staining fluid, on a glass cuvette with an oval bottom, and the whole is set aside for half an hour at room temperature, and then rinsed with water and dried in the air. The stain on the back of the cover glass is wiped off with a towel. This is easily done if a little anilin is placed on the towel. The specimen is examined with an immersion lens and powerful light and entirely open condenser. These specimens do not keep well, as they grow in time less distinct.

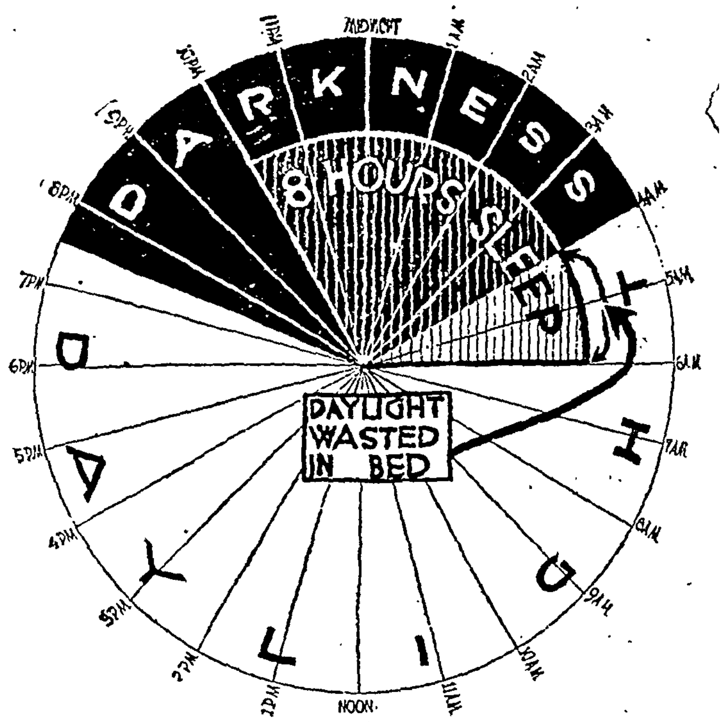
The cultures used must not be over 8 days old; Claudius prefers solidified serum (as for diphtheria) to agar. A small drop of ordinary water is placed on the thin, flamed slide, and an extremely small amount of the material is transferred to the drop of water with the tip of a fine platinum needle, and the whole is stirred well and spread over an area of several centimeters in the center of the slide. When the glass is clean and free from grease, the emulsion of the bacteria lies in a thin, scarcely visible layer wherever it is carried with the needle. The cilia show up distinctly against the glass, which takes a bluish or violet tint. The stain adheres firmly to the glass, forming a colored film on it. This molecular precipitation is the essential element in the technic. Not only the slide itself but also its holder take the stain, so that it looks as if originally stained glass had been used. The stain at first is of the tint of the chromic acid solution, but in the course of five or ten minutes it changes to a smoke color which gradually blends into a bluish black. The bacteria show a gray nucleus, surrounded by the unstained protoplasm, from which project the likewise unstained cilia. The aspect is as different, he says, from the ordinary photomicrograph of a bacterium as the roentgen picture of a hand differs from an ordinary photograph of it. As the strong light from the microscope condenser falls on the unstained parts, the nucleus is seen surrounded with a shining medium, the protoplasm and cilia, which look like the light phenomena, the lines of force, in the electrostatic field of a very high potential. Claudius adds that it is most remarkable how the protoplasm allows the stain to pass through to the nucleus without taking up any of it itself, when even the mirror-smooth glass takes the stain to an intense degree. This technic, he says, has proved invariably successful in his hands, and he has grounds for thinking that it is going to prove useful in other fields of bacteriologic microscopic technic.

SAVING DAYLIGHT

To the Editor:—At the risk of showing what you may consider lamentable ignorance, I wish to have explained the advantages of "Saving Daylight." In The Journal's editorial March 2, 1918, you say, "The daylight saving plan has, from a health standpoint, everything in its favor and nothing against it." I have asked a number of our physicians here and they are quite as much in the dark as I am.

M. R. W., Reno, Nev.

Answer.—Senator Calder on April 17, 1917, introduced a bill drafted by the National Daylight Saving Association which provides for setting forward the clock by approximately one hour for the whole country during the summer months. The bill was adopted unanimously by the Senate but, due to what the *Survey* has termed "guerrilla methods of committee procedure," it failed in the House. On March 14 of this year the newspapers reported that, after Representative Madden had blocked the passage of the bill, the chairman of the Rules Committee of the House had declared that if further obstructive tactics were used to postpone action on the measure, a special rule would be reported out for its immediate consideration. On March 15 the House passed the bill by a vote of 252 to 40. The House bill differs from the original bill in that the daylight-saving period is extended from five months to seven months. The Senate concurred in the amendment, and on Tuesday, March 19, the amended bill was signed by the President. Under the bill the clocks of the country will be put forward one hour at 2 a. m. on the last Sunday of March of each year and put back one hour at 2 a. m. on the last Sunday in October. The accompanying chart (reproduced from the Chicago *Herald*) shows that one of the two hours of daylight which most people spend in bed during summer months will be made available for use at the other end of the day. When the new law is in force, instead of becoming dark at 7:30 p. m. (clock time), it will not become dark until 8:30 p. m. (clock time). This means that for the majority of city dwellers an extra hour of recreation-time is transferred from artificial light to daylight. This means a saving of illuminants, a widened opportunity for outdoor sports, less eye-strain because of the lessened use of artificial illumination and the by no means negligible advantage, under present conditions, of greater opportunities for work on "war gardens." The daylight saving plan has been adopted by Great Britain, France, Italy, Holland, Denmark, Norway, Sweden, Portugal, Germany and Austria. A social worker in London reports that as a result of the law "in the height of the summer it was thought a Saturday afternoon holiday had been added to each day." Furthermore, the police reports show that the tendency to spend the extra hours out of doors, together with the fact that it is easier to maintain order in daylight, had greatly improved the moral tone of the community. The cities of Cleveland and Detroit, which locally adopted the daylight saving plan by working under Eastern time in place of Central time, are reported to have saved about $200,000 each in the consumption of illuminants. The Cleveland Chamber of Commerce also reported that the change resulted in 2,000 more men playing baseball and 1,000 more persons playing tennis each evening. The daylight saving plan has been strongly supported by leading commercial organizations, by the American Federation of Labor and the principle is said to have been endorsed by the President himself more than a year ago. In Germany the illuminating companies have petitioned the government to rescind the law there in force because their incomes have been seriously diminished.



When the clock is set ahead, the dark sector will extend from 8:30 p. m. to 5 a. m.

MELUBRIN

To the Editor:—1. What is Melubrin? 2. What is its therapeutic use and dosage? 3. Is there a satisfactory substitute for it?

Paul D. Espey, M.D., Xenia, Ohio.

Answer.—1. New and Nonofficial Remedies, 1918, p. 276, states that Melubrin is the sodium salt of 1-phenyl-2,3-dimethyl-5-pyrazolon-4-amino-methan-sulphonic acid and that it is closely related to antipyrin.

2. Melubrin acts as an antipyretic and analgesic. It is said to be useful in painful affections, such as sciatica and other neuralgias, and as an antipyretic in various febrile affections. It is said to have effects similar to salicylates in acute rheumatism. The dose is from 1 to 2 gm. It is claimed that as much as 10 gm. may be given daily.

3. Acetanilid or antipyrin will probably answer all purposes. Sollmann (Manual of Pharmacology, 1917, p. 471), in discussing the "coal-tar antipyretics," says, "Practical experience has shown that acetphenetidin, acetanilid and antipyrin are the most useful representatives of the group, and that all the others may well be spared."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, April 2. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

Colorado: Denver, April 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.

Idaho: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigby.

Illinois: Chicago, March 25-26. Mr. F. C. Dodds, Supt. of Registration, Springfield.

Minnesota: Minneapolis, April 2-4. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

Montana: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

Nevada: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

Oklahoma: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

Rhode Island: Providence, April 4-5. Sec., Dr. B. U. Richards, State House, Providence.

Utah: Salt Lake City, April 1-2. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 12-14, 1917. The examination covered 15 subjects and included 105 questions. An average of 75 per cent. was required to pass. Of the 47 candidates examined, 28, including 1 osteopath, passed, and 19 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Atlanta Medical College	(1915) 76.7; (1917)	75.1, 75.6, 76.1.
Loyola University	(1916)	75.6
University of the City of New York	(1885)	79.7
Women's Medical College of the N. Y. Infirmary for Women and Children	(1899)	75
Jefferson Medical College	(1917)	80, 82.5 85.7.
Medical College of the State of South Carolina	(1917)	75, 75, 75.1, 75.1, 76.2, 76.6, 77.5, 77.7, 78.1, 79.4, 80.4, 81.4, 81.6, 84.2, 84.5, 85.9.
Medical College of Virginia	(1917)	84.2
FAILED		
Birmingham Medical College	(1908) 71.1; (1915)	64.7
Atlanta Medical College	(1914) 69.9; (1915) 64.9; (1917)	70.6, 71.9
Southern College of Medicine and Surgery	(1914)	68.7
University of Georgia	(1914)	69.2
University of Oklahoma	(1915)	66.7, 66.7
Medical College of the State of South Carolina	(1917)	70.5, 73
Meharry Med. Coll. (1907) 59.4; (1909) 70.1; (1914) *;	(1916)	74.9
Memphis Hospital Medical College	(1911)	60
University of Tennessee	(1905)	44.4
Vanderbilt University	(1916)	55.2

* No grade given.

Missouri September Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the oral and written examination held at Kansas City, Sept. 24-26, 1917. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 16 passed and 4 failed. Ten candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bennett Medical College	(1915)	80.8
Chicago College of Medicine and Surgery	(1917)	87
Hahnemann Medical Coll. and Hosp. of Chicago	(1916)	85
Northwestern University	(1917)	84.1, 86.9
Rush Medical College	(1916)	81.1
University of Illinois	(1917)	90.2
University of Kansas	(1917)	84.5
Harvard University	(1917)	92.7
National University of Arts and Sciences	(1917)	78.1
St. Louis College of Physicians and Surgeons	(1910)	75.1
University Medical College of Kansas City	(1913)	75
Meharry Medical College	(1917)	75.1, 75.1
University of West Tennessee	(1915)	75.1
Vanderbilt University	(1899)	75
FAILED		
Meharry Medical College	(1915) 71.9; (1917)	69.9, 72
University of West Tennessee	(1915)	69.9

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1912)	Dist. Colum.
Howard University (1910) West Virginia	(1915)	Kansas
Jenner Medical College	(1907)	Illinois
Rush Medical College	(1915)	Illinois
University of Kansas	(1916)	Kansas
Eclectic Medical University	(1906)	Kansas
St. Louis University	(1909)	Illinois
Meharry Medical College	(1913) (1916)	Tennessee

Rhode Island September Examination

Dr. Byron U. Richards, secretary of the Rhode Island State Board of Health, reports that 3 candidates were licensed at the special examination held Sept. 26-27, 1917. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Johns Hopkins University	(1916)	88.5
Harvard University	(1915)	87.1
Cornell University	(1915)	91.4

Idaho October Examination

Dr. Charles A. Dettman, secretary of the Idaho State Board of Medical Examinations, reports the written examination held at Pocatello, Oct. 2-4, 1917. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined of whom thirteen, including 2 osteopaths, passed, and 3, including 1 osteopath, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1911)	85
Atlanta College of Physicians and Surgeons	(1910)	81
Chicago College of Medicine and Surgery	(1912)	82
Chicago Homeopathic Medical College	(1904)	80
College of Physicians and Surgeons, Chicago	(1895)	83
Northwestern University	(1898)	85
National University of Arts and Sciences	(1917)	81
Long Island College Hospital	(1899)	80
Western Reserve University	(1917)	86
Chattanooga Medical College	(1906)	75.5
Tennessee Medical College	(1901)	75
FAILED		
Hospital College of Medicine	(1907)	73
Eclectic Medical University	(1917)	69.9

Porto Rico October Examination

Dr. M. Quevedo Baez, secretary of the Board of Medical Examiners of Porto Rico, reports the practical and written examination held at San Juan, Oct. 2, 1917. The examination covered 10 subjects and included 123 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 14 passed and 6 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Leland Stanford Junior University	(1917)	84.7
Chicago College of Medicine and Surgery	(1917)	78.1
Loyola University (1915) 77; (1916) 77;	1917)	76, 82.8
University of Illinois	(1917)	75
University of Maryland (1916) 85;	(1917)	75 87.4
University of Michigan Medical School	(1917)	81.7
University and Bellevue Hosp. Med. Coll.	(1917)	85.8
Medical College of Virginia	(1917)	81.8, 82.5
FAILED		
Chicago College of Medicine and Surgery	(1917)	65.7, 68.2
Loyola University (1916) 65.8;	(1917)	66.2
Physio-Medical College of Indiana	(1908)	55
Meharry Medical College	(1917)	69.6

Connecticut Homeopathic Examination

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports one candidate licensed since Aug. 1, 1917, and also the written examination held at New Haven, Nov. 13, 1917. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
N. Y. Homeo. Med. Coll. and Flower Hosp. (1916) 80;	(1917)	90

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Hahnemann Med. Coll. and Hosp. of Chicago	(1906)	Illinois
	(1908)	Mass.
New York Homeo. Med. Coll. and Hospital	(1905)	New York
Hahnemann Med. Coll. and Hosp. Philadelphia	(1886)	Mass.
	(1894)	California

Book Notices

The Organs of Internal Secretion: Their Diseases and Therapeutic Application. A Book for General Practitioners. By Ivo Geikie Cobb, M.D., M.R.C.S. Cloth. Price, $2. Pp. 228. New York: William Wood & Co., 1917.

The aim of this book is twofold: (1) To be "a guide to other practitioners as to the rôle which the ductless glands play in promoting bodily health," and (2) "to point out those morbid states of health in which organic extracts may be utilized with success." The glands written about at some length are the thyroid and parathyroid, including, of course, the subjects of hyperthyroidism and thyroid deficiency; the pituitary body; the suprarenals; the pancreas; the sexual organs and their internal secretion, and the internal secretions of digestion. There is a chapter on the therapeutic application of hormones, and one containing conclusions and a bibliography. Other glands, organs and tissues are referred to in the text (the liver, spleen, thymus, brain, cord, gastric mucosa, etc.), but are not given as much prominence as some of the others. The pineal gland is not mentioned.

From a literary point of view the book is readable. It would have been gratifying if the volume really presented to the general practitioner the "salient facts" gathered from "lengthy works" dealing "with ductless glands and their secretions," which include "the results of laboratory research in detail." This, unfortunately, is not the case. It appears a random compilation of statements from a limited number of authors. Any one who has read critically the physiologic evidence of the larger works referred to in the author's bibliography should be able to write with greater accuracy on the physiology and therapy of these glands, especially if he has kept in touch with what has appeared on the subject since the books were published—a huge responsibility which devolves on the man who desires accurately to inform his busy fellow practitioners. Others have accepted the responsibility in full, and their conclusions as to the present value of opotherapy have been less optimistic but more accurate.

Hormone therapy just now is a thing to conjure with. If much of the current "drug therapy is empirical," and if "much of such treatment would be quite useless were it not accompanied by the hope and faith of the patient" (p. 213), why is the same statement not applicable to Cobb's cures of "neurasthenia following a severe abdominal operation," after considering the syndrome, by oral administration of pituitary extract (p. 6), or other cases of neurasthenia in which dry suprarenal extract administered orally is indicated, or to those cases in which "it is sometimes of service to use what Leonard Williams calls a 'mitrailleuse,' i. e., a preparation containing the extracts of many glands. Such a one is hormatone, and it is claimed that its exhibition is followed by marked benefit in many indefinite conditions" (p. 12). Indeed, some, no doubt, would like to know why "extracts of brain and spinal cord, of the pancreas and liver, of the testes and seminal vesicles are of much help in fattening up patients" (p. 14). Are hormones responsible? Or is it faith and hope? Or would franklinism, roentgen rays, massage, psychanalysis, absent treatment by "Christian Science," each singly or combined as a "mitrailleuse," do quite as well? May it not be due to the "hyperalimentation" by feeding a great deal of food in a powdered form? But then, the "mitrailleuse" is frequently indicated in convalescence, as after pneumonia (pp. 13 and 14) and for supposed "hypoendocrinism"—in the "functional neuroses" (p. 211). Even "cases of acromegaly have been reported as cured, or much relieved, by preparations containing thyroid, sexual glands, spinal cord, etc., presumably by restoration of the hormonic balance produced by the antagonistic extracts" (p. 206). It is the shotgun prescription in the twentieth century under a new guise!

Space does not allow complete critical analysis of this curious book. Attention will be called to a few of the errors of fact and logic:

Every one believes that there is a relative and absolute diminution of both colloid and iodin in exophthalmic goiter; still Cobb asserts (p. 48) that "iodine is excessive in the colloid in Grave's disease." Furthermore, as long as the author does not give proof of the view that we are dealing with several different hormones of the thyroid gland, how can any one conceive of the presence of symptoms of hypersecretion and hyposecretion in one individual at the same time, or, as the author states in quoting the views of Léopold-Lévi and H. de Rothschild, that characteristics of "thyroid excess and thyroid deficiency . . . may be present successively or even concurrently in the same patient" (p. 71)? When the author writes that hypersecretion and hyposecretion of the thyroids "are present, but not necessarily at the same time," he implies that they can be present at the same time. Such statements call for an explanation. And the practitioner who reads would like to know what form of opotherapy is used to remedy this synchronous excess and deficiency of thyroid secretion.

It seems that the author is not familiar with the use of pituitary solution as an antidiuretic in cases of diabetes insipidus (palliative measure). Furthermore, quite a number of physiologists and not a minority of clinicians are satisfied that pituitary solution is no more a galactagogue (Gaines) than is thyroid (p. 86). Waiving these possibly disputed points, it has been known since 1898 (Compte) and abundantly verified since then that the pituitary gland undergoes a hyperplasia during pregnancy and no "hypoplasia," as Cobb asserts. In fact, the enlargement of this gland during pregnancy may result in symptoms of raised intracranial pressu (Fisher: *Brit. Jour. Ophth.*, 1917, **1**, 593-599).

Passing now to the suprarenal gland, we find the author knowledge of the physiology of this organ markedly deficient (p. 118). He seems not to know that death in animals consequent to the removal of the suprarenals is due chiefly, if not entirely, to the removal of the cortex of this gland and not to the removal of the medulla, which gives rise to epinephrin.

The tonus theory espoused by Cobb is of historical interest. As Swale Vincent wrote recently of the medulla and its epinephrin: "It is difficult to adduce any satisfactory evidence that the secretion of the chromophil tissue is of any service whatever in the normal state of the animal." We do know at present that the cortex of the suprarenal is necessary for life. The muscular asthenia of Addison's disease is comparable to the muscular asthenia in animals which die following the removal of the cortex of the suprarenal, and not the medulla with its epinephrin. Regarding the action of the latter on the heart, Cobb states on page 98 that it "increases the rapidity of the heart's action"; on page 118 that it "causes slowing of the pulse when injected"; on page 192 again that it "causes a rapid rise in the pulse rate."

According to Cobb, the hormone of the pancreas is concerned with the prevention of an undue amount of glucose from accumulating in the blood. Because of this error he hopelessly confuses the various glycosurias that result from hyperglycemia (epinephrin, puncture glycosuria) with pancreatic diabetes and diabetes mellitus. Whereas most investigators admit that in the latter there is partly overproduction of glucose and a failure of storage of glucose, the essential trouble in these conditions is a failure of oxidation of the sugars. Common to puncture diabetes, epinephrin glycosuria and pancreatic diabetes or diabetes mellitus is solely the hyperglycemia and glycosuria. The supposed lack of balance between the suprarenals and pancreas as a cause of pancreatic diabetes has been, like other cases presumably due to lack of balance between antagonistic glands, from the first an ingenious hypothesis, without the slightest experimental evidence in its support.

No mention is made of the Allen treatment in diabetes mellitus, the most satisfactory we have and based on a theory supported by experimental evidence on lower animals and practical results on human beings. To be sure, the Allen treatment does not involve the feeding of organ extracts singly or combined. However, when therapeutic measures, such as bile salts, calcium salts, parathyroid extract, and faradism and galvanism applied to the sympathetic of the neck, are mentioned in cases of exophthalmic goiter (p. 50), the most hopeful form of treatment in diabetes certainly deserves mention, especially when Cobb himself says (p. 145), "It must be confessed that there is an opening for any form of treatment which will make the lot of the diabetic an easier one." Feeding of preparations of the pancreas, even when the latter are made from the islets themselves, have been notoriously ineffective in ameliorating the symptoms of diabetes except in those instances possible in which whole pancreas preparation has been given to replace loss of the external secretion. As a matter of fact, the disease usually becomes worse. Every practitioner has a right to ask, therefore, why no more than a passing reference has been made to Allen's work, such as appears on page 220, and to his later work on human patients, which receives no consideration at all.

Space does not allow a discussion of the supposed physiologic value that "liver extracts are supposed to possess." Not that Cobb subscribes to all or any of the statements. But why, it may be asked, should the book contain statements prefaced by "it has been stated," "hepatic extract has been employed," etc., when the author should know that there is no scientific evidence in favor of this particular form of medication? Why should the general practitioner become familiar with these misguiding statements?

Cobb does, however, advise the use of the various preparations of secretion. In an article, "Has Secretin a Therapeutic Value," by Carlson, Lebensohn and Pearlman (THE JOURNAL, Jan. 15, 1916, p. 178), it was indubitably shown that active secretin is not efficacious when given by mouth, and that the "presence of secretin or prosecretin cannot be demonstrated in the commercial preparations 'Secretogen,' 'Elixir Secretogen' and 'Duodenin.'" In the case of "Secretogen," which Cobb mentions specifically, it was shown that "intravenous injection of 100 times the therapeutic dose reveals occasionally an insignificant trace of secretin."

CLINICAL CARDIOLOGY. By Selian Neuhof, B.S., M.D., Visiting Physician, Central and Neurological Hospital. Cloth. Price, $4. Pp. 302, with 247 illustrations. New York: The Macmillan Company, 1917.

Neuhof has attempted to put into small compass the essentials of the etiology, pathology, symptomatology, diagnosis and treatment of diseases of the heart. He has succeeded wonderfully well. He has shown a wise discrimination in deciding both what should be omitted and what included. There is a good epitome of the essentials of physical diagnosis, a concise summary of the general plan of treatment. Pathology is treated rather scantily. Symptoms, diagnosis and prognosis are handled in a brief but generally satisfactory manner. The main value of the book is its first nine chapters. Here are discussed the later views as to the anatomy and physiology of the heart, together with the subjects of the polygraph, electrocardiograph and roentgen ray. Here also are considered the cardiac irregularities. While these chapters, naturally, are largely of the nature of compilation, one clearly recognizes that the author has more than a mere book knowledge of his subject and that he is practically acquainted with the working of these instrumental aids to diagnosis. More than that, he has an opinion of his own on many of the moot questions of cardiology and is clearly of an investigatory turn of mind. This combination of the investigator and the student of medical literature with the practical clinician who is familiar not only with the bedside features of cardiac disease but also with the more refined means of instrumental diagnosis is what makes the book a live and stimulating one. There are points on which the reader might raise the question of doubt; there are errors of typography and some rather faulty English; but the merits so far outweigh these minor defects that we can strongly recommend the book to the student and general practitioner. It is well and instructively illustrated.

THE THIRD GREAT PLAGUE. A Discussion of Syphilis for Everyday People. By John H. Stokes, A.B., M.D., Chief of the Section of Dermatology and Syphilology, the Mayo Clinic, Rochester, Minn. Cloth. Price, $1.50 net. Pp. 204, with illustrations. Philadelphia: W. B. Saunders Company, 1917.

The author has put the important facts in our knowledge of syphilis into form for the lay reader. He considers all of the aspects of the disease as it affects the individual in his personal and in his social life. The work is easily read and worthy of the purpose for which it was prepared.

Social Medicine, Medical Economics and Miscellany

The Economic Problem of Crippled and Disabled Men

The economic rehabilitation of crippled and disabled men in military service is now and will continue to be one of the great problems of the war. The Red Cross Institute for Crippled and Disabled Men is already providing care for a number of civilian cripples, and a painstaking study of their needs is being made with a view to meeting future conditions. The experiment had for its primary object the cooperation of the institute with the cripples themselves, with a view to finding out what attempts they were making to readjust themselves to the demands of industry, and is described by a member of the staff (Faries, J. C.: The Economic Consequences of Physical Disability, a Case Study of Civilian Cripples in New York City, Publication 2, Red Cross Institute for Crippled and Disabled Men). Investigators secured data on 361 cases of injury to upper and lower limbs resulting in the loss of one or more members, and the statistics they obtained form the basis of the report. A large part of the data were secured from the records of the New York State Industrial Commission, which stated the nature of the man's injury, the amount of his wages at the time of his accident, and the amount of compensation awarded. One of the most important facts brought out by the investigation was that a man's return to industry depends largely on the kind of surgical attention he receives. That return may be hastened by a skilful operation or greatly delayed by a bungling one, in which the patient may be left with a clumsy and bulging stump, or with the nerves of the stump exposed, or with bone splinters, or ankylosed fingers that destroy the usefulness of the hand. These facts were confirmed by the records of twenty New York hospitals, as well as by the stories of the cripples themselves. Undoubtedly any institution that hopes to reeducate the crippled and the disabled and to fit them for self-support must have the cooperation of skilled orthopedists. Another fact revealed by the investigation was that men with artificial legs stand a much better chance of finding employment than men who are without them, or who use crutches. Many employers, it seems, who object to crutches, have no objections to artificial limbs. The great difficulty, however, is that a really efficient hand and arm is so expensive that few of the wage-earning class can afford one. The report points out that the institute should be familiar with the best prosthetic appliances obtainable, and recommends that a museum for the display of such devices be added to its equipment. Out of the 361 cases investigated, 129 men were found in need of reeducation either for their old trades or for new occupations. After careful inquiry, however, less than half of these appeared to be hopeful candidates for such training as the institute could give.

The problem which the institute has been established to solve is being handled on a large scale in New Zealand by a special department of the government, which undertakes to find suitable employment for the returned soldier and otherwise to assist the process of his readjustment to civilian life. Preference in employment is given by all departments of the government to all returned men. The same policy is pursued by the local labor offices, while the railway department undertakes to provide for its own former employees returning disabled from the front. This work has been highly successful, possibly on account of the fact that, at present, there is a great demand for labor in New Zealand. On the other hand, the results of efforts to reeducate disabled men have not, as yet, been particularly encouraging, according to a report based on material obtained from the Returned Soldiers' Information Department of New Zealand (McMurtrie, D. C.: Memorandum on Provision for Disabled Soldiers in New Zealand, Public 3, Red Cross Institute for Crippled and Disabled Men). A number of technical schools and colleges have offered courses of practical training for disabled men, but with a few exceptions, the attendance of the classes has been irregular and the progress poor, i[illegible]te of the mai tenance allowance granted by the government to all men attending classes and making satisfactory advancement. Considerable effort has been made to induce the government to establish reeducational schools for the men, but the plan is not favorably regarded by the minister in charge of the Returned Soldiers' Information Department. He is quoted as doubting the success of the scheme because of the probable distaste of the men for the necessary restraints of institutional control. The natural desire of the men to return at once to productive labor, as well as their desire of independence from control, doubtless accounts, in a large measure, for the indifferent results the government has obtained from its efforts at reeducation.

Child Labor and Child Welfare in South America

Argentina has a child labor law requiring a permit for children under a certain age before they engage in industry. This permit, according to Edward N. Clopper of the National Child Labor Committee (*Survey*, Jan. 5, 1918) is an improvement over any permit used in the United States. It is in the form of a booklet that contains the name and address of the bearer, a description, his certificate of age, his record at school, his certificate of physical fitness, and the signature of the official granting the permit; also the law governing the employment of minors, and a record of all the positions held by the bearer, with dates, names of employers, character of service rendered, wages earned and other information, making it a source of the industrial history of the child as well as of important statistical information.

Uruguay, he says, is one of the most progressive countries. There they have the eight-hour day for adults, and only 4 per cent. of the scholastic population is illiterate. With a population of a million and a half there are 1,000 schools with an enrolment of 100,000. Attendance is compulsory; medical inspection has been highly developed and embraces examination and vaccination of pupils and teachers; school construction and school hygiene and programs are properly supervised with reference to the welfare of the pupils.

Bogota, Colombia, has school medical inspection annually, in charge of three physicians who keep a record of examinations and recommend measures to promote hygienic conditions.

In Chile the most effective child welfare work is carried on at Santiago, where a welfare society has established milk stations, retreats for mothers with new-born children during convalescence, a system of distributing clothing to those in need, and mothers' consultations for prenatal care for prospective mothers, with financial assistance, where necessary. As a result of the work of the society since its organization sixteen years ago, the death rate of infants under 1 year has been cut from between 34 and 39 per cent. to 8.4 per cent. This work cost during 1917 about 170,000 pesos (dollars), of which 70,000 pesos were contributed by the government.

Malaria Control

A reduction in the incidence of malaria and in the economic losses it entails was the object of a series of demonstrations in malaria control, conducted in 1916 by the United States Public Health Service in cooperation with the International Health Board (Public Health Bulletin 88: Malaria Control, A Report of Demonstration Studies Conducted in the Urban and Rural Sections, by R. C. Derivaux, H. A. Taylor and T. D. Haas). The demonstrations took place in southeastern Arkansas, where mosquitoes abound, and farming and lumber enterprises have, at times, been abandoned because of the havoc wrought by malaria among the workers. Here, three species of *Anopheles* were identified as carriers of malaria: *Anopheles quadrimaculatus* Say, *Anopheles punctipennis* Say, and *Anopheles crucians* Wiedemann.

During the season of active mosquito propagation, the chosen districts were systematically examined by the sanitary inspector, and a chart was kept recording the monthly incidence of malaria as affected by the antimosquito operations. The campaign involved the drainage of wet areas, the filling of pits, the oiling of pools, and the removal of obstructions from ditches whose waters fairly swarmed with larvae and pupae. The result was a decided reduction in the malaria rate from May to December.

Two different types of localities were selected for the investigation—a small town, where the work of clearing and draining was supplemented by the use of oils and larvicides, and a group of plantations, where studies in the efficacy of house screening and of quinin in immunizing and sterilizing doses were conducted. In one series in which 237 persons were given quinin for immunization, there was a reduction of 64.45 per cent. in the incidence of malaria. In a group of sixty-nine carriers to whom quinin was given for sterilization, the reduction amounted to 95.17 per cent.

The bulletin is freely illustrated, and is accompanied by many charts and tables dealing with every statistical phase of the investigation.

Medicolegal

Approval of Claim for Treating Abscess After Thirty Days from Accident

(In re McCaskey (Ind.), 117 N. E. R. 268)

The Appellate Court of Indiana, Division 1, holds that, under the provision of the workmen's compensation act of that state, which requires an employer to furnish a physician only during "the thirty days after an injury," a physician was entitled to have his claim for $50 for services approved by the industrial board in a case in which an employee was accidentally struck in the forehead with a sledge hammer, February 17, and continued his work in the belief that he had received no physical injury until and including March 18, when in the evening he was taken with a violent pain in his forehead and on the following day the physician was called, who diagnosed the trouble as an abscess in the right frontal sinus, drained the sinus, and continued his treatment for about ten days. The court says that, under the facts of this case, the employee would have been entitled, at common law, in an action for damages for his injuries based on negligence, as one of the elements of his damage, to the expense he incurred for medical and surgical services necessary to the proper treatment of such injuries. By the act involved, the legislature expressly recognizes a portion of such services as a proper element of compensation to an injured employee. The language of the statute, and justice and reason alike, authorize the conclusion that the services of an attending physician for which compensation was intended was a service to be rendered after there was an actual known physical injury, and hence when, as in this case, the undisputed facts show an accident to an employee in the presence of his employer, the immediate effects of which are not such as to indicate to either employer or employee any disability within the meaning of the statute or any injury requiring the services of an attending physician as provided therein, and such physician is, at the time, neither asked for or called by the employee, nor furnished by the employer, and it turns out later that the injury resulting from such accident is more serious than was at first thought, and is in fact such as results in a disability of the employee within the meaning of the statute, the thirty-day period during which the employer must, under the statute, furnish an attending physician, begins to run when the disability to the employee within the meaning of the statute develops from such injury. It follows that under the facts certified to the court in this case by the industrial board, such board is, by the statute, given authority to approve the physician's claim, and, assuming that the facts above indicated are undisputed, this court would say as a matter of law that said claim should be allowed. However, the question of when an injury occurred, like any other question of influence in determining whether a claim should be allowed by the industrial board, is, ordinarily, a question of fact to be determined by such board from all the evidence before it; and its determination thereof, when it has any evidence for its support, will be conclusive on this court.

Roentgenographic Pictures in Book as Evidence—Damages for "Blues"

(Chicago, R. I. & G. Ry. Co. vs. Smith (Tex.), 197 S. W. R. 614)

The Court of Civil Appeals of Texas, in affirming a judgment for $10,000 damages for personal injuries, in favor of plaintiff Smith, holds that there was no error in permitting the plaintiff to introduce in evidence, in connection with the testimony of a physician, certain roentgenographic pictures of the bones of the normal foot found in the medical work known as "Treatment of Fractures," by Scudder. The court says that on the cross-examination of the physician he stated that the plates or photographs introduced were to his knowledge correct pictures of normal arches of the feet. He further testified that the book containing the plates was a standard work, accepted by the medical profession generally. It further appeared from the record that the condition of the plaintiff's feet, both before and after the injury, was shown by the evidence. In this state of the record, the plates were certainly not immaterial or irrelevant. Their correctness was established by the evidence of the physician, and, while the predicate for their introduction in evidence was not laid prior to their introduction, this objection was removed by proper subsequent proof.

On the witness stand the plaintiff stated that the condition of his foot affected his mind, the way being that he got awfully blue at times, when he saw that he could not do as he used to do, and get about as he would like to, and hold the positions that he would want to. It was contended that if he was correct in his statement that his attacks of "blues" and his occasional morbid mental conditions were due to the injury to his feet, still such effects of an injury could not form the basis of a recovery, or enter into the estimate of the damages, according to the rule which prevails in the United States courts. But the court does not agree with that contention. It says that some of the lower federal courts have held that mortification or distress of mind from the contemplation of one's crippled condition, and its effect on the esteem of his fellows, which is held to be mental pain, separable from the physical suffering caused by the injury, is too remote, indefinite and intangible to constitute an element of damages in such case. But the statement of the plaintiff clearly did not bring this case within that rule. He made no reference whatever to the esteem his fellows would place on him, or to the mortification attending the realization of the fact that he was maimed, crippled and disfigured, but stated that his mental condition, which he described as "the blues," was the result of the thought that he could not, since the accident, "get about" and do as he would like to, and hold the positions which he would want to hold. As an element of damages this came within the rule announced in the case of *M., K. & T. Ry. Co.* vs. *Miller*, 25 Tex. Civ. App. 460, 61 S. W. 978, in which a writ of error was denied by the Supreme Court of Texas.

Acute Nephritis and Other Diseases as Injuries by Accident

(United Paperboard Co. vs. Lewis (Ind.), 117 N. E. R. 276)

The Appellate Court of Indiana, Division No. 1, affirms an award in favor of claimant Lewis, who, while in the employ of the company, on the breaking of an iron pipe, became overheated in flushing hot steam pulp into the sewer with hot water from the exhaust of an engine, and then, on his way home to dinner began to chill, and continued to chill for several days, and acute nephritis manifested itself. The court says that the workmen's compensation act of Indiana makes provision for the payment of compensation for personal injury or death by accident to an employee, arising out of and in the course of his employment. Repeated efforts have been made to define an "accident" as used in similar acts in various jurisdictions, but the definitions are not uniform. One frequently approved defines an accident to be "an unlooked for mishap, an untoward event which is not expected or designed." The courts have also differed as to whether a disease following an employment should be considered an injury by accident within the meaning of such acts. In the various decisions on this subject it is generally recognized that diseases are of two classes: first, the so-called industrial or occupational diseases, which are the natural and reasonably to be expected results of a workman's following a certain occupation for a considerable period of time; second, diseases which are the result of some unusual condition of the employment. The first class is illustrated by lead poisoning and the second by pneumonia following an enforced exposure. As a rule, such industrial or occupational diseases are not considered as injuries by accident and in the absence of special statutory provision compensation is not allowed therefor. On the other hand, it is generally accepted that a disease, which is not the ordinary result of an employee's work, reasonably to be anticipated as a result of pursuing it, but contracted as a direct result of unusual circumstances connected therewith, is to be considered an injury by accident, and comes within the provisions of acts providing for compensation for personal injury so caused. In this case the industrial board may have very properly found that the breaking of the pipe created an unusual condition under which the claimant was required to work at the time in question, resulting in enforced exposure. In such event, any disease, of which such exposure was shown to have been the cause, might properly be said, under the rule stated, to constitute a personal injury by accident, and to come within the provisions of the workmen's compensation act of this state. It may be well to observe that the courts are practically unanimous in holding that the words "by accident arising out of and in the course of the employment," as used in workmen's compensation acts, should be given a broad and liberal construction in order that the humane purpose of their enactment may be realized. Their meaning, when so used, has been frequently considered in various jurisdictions having such acts, and it is generally accepted that an injury is received in the course of the employment when it comes while the workman is performing the duty for which he is employed, and it arises out of the employment, when there is apparent to the rational mind, on a consideration of all the circumstances, a causal connection between the conditions under which the work was required to be performed and the resulting injury. The evidence in this case furnished a sufficient basis for finding a causal connection between the conditions under which the work was required to be performed and the resulting injury. The contention that the claimant brought on the chill by voluntary exposure was without merit. If such fact were conceded, it could not defeat his right to compensation, even if it could be said that such exposure was an act of negligence which contributed to his injury. Mere negligence is not a ground of defense to a claim for compensation under the act in question, and there was no suggestion of wilfulness. Nor was the fact that the claimant did not chill until he had ceased work and left the company's premises of any consequence under the attendant facts.

Power of Assistant Engineer and Others to Employ Physicians

(Carson vs. Chicago, M. & St. P. Ry. Co. (Ia.), 164 N. W. R. 747)

The Supreme Court of Iowa reverses a judgment obtained by the plaintiff for medical services and hospital care for a colored laborer employed by the defendant, who was badly cut one rainy day when he had laid off from work and gone to a village. The case turned largely on the question of the power of the assistant engineer in charge of the work being done by the defendant to employ a physician. The company's regularly employed surgeon was absent when the physician was engaged, and, without reviewing the evidence, the court says it is of the opinion that it was sufficient to have warranted the jury in finding that the assistant engineer had authority to engage the physician's services, had the man been injured while in the line of his employment. Surely ratification of his action in repeatedly taking employees to physicians other than those regularly employed by the company, by compensating them for services so rendered, was evidence that he had authority so to do. But no authority had been expressly conferred on the assistant engineer to employ a physician in behalf of the defendant, or to authorize him to engage the services of the plaintiff or procure the care of the patient at the hospital; nor, as the court thinks, had such authority been impliedly conferred on the assistant engineer by virtue of his position.

There is nothing in the designation "assistant engineer" warranting the inference of large discretionary powers in representing the company. Indeed, the name suggests limited, rather than general, powers. The circumstance of being "assistant" imports subordination to another, and puts all on inquiry as to the scope of his activity in helping another or others. The duties of an assistant ordinarily are circumscribed. Authority to employ a physician is not to be inferred from the mere fact that an employee is a roadmaster, or is a conductor, or is a foreman, or is a yardmaster, or is a station master, or is a general surgeon. One court held that this is true also of a division superintendent. But as to this there is some conflict in the authorities.

This court has no difficulty in reaching the conclusion that the assistant engineer was without authority to employ a physician to treat or operate on an employee injured while not engaged in the line of his duty or service and within the scope of his employment. The company was under neither a legal nor a moral obligation to care for him, or to see to the healing of his wounds. Though the wound may have been such as to require immediate attention, the injury was not suffered while he was engaged in the service or in the performance of a duty for the defendant, and therefore the authority of another employee to render assistance by securing medical attention could not be implied. If it could be said that the wound was such as involved an emergency and required immediate attention, the situation was not such as that authority of the defendant's subordinate officers or employees, such as foreman or assistant engineer, to employ medical aid, would be implied. This happens only when the employee is injured in the actual service or in the performance of some duty for the master. No duty to provide for medical aid could have been implied, save from the circumstance that the emergent injury occurred in effectuating the purpose of the party held liable, or because of other interest, and this court has found no case to the contrary.

It was argued that the physician was not required to ascertain at his peril whether the employee was injured while actually engaged in the line of his employment; but it is elementary that those dealing with agents are bound to know the extent of the agent's authority. If they do not know, they must ascertain at their peril. On the other hand, the principal is not charged with knowledge of anything the agent may do in excess of his authority, and is not bound thereby, save on ratification, unless the party dealing with the agent has been misled to his injury by the principal having clothed the agent with apparent or ostensible authority to do the things he has done in excess of authority.

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.

Alabama State Medical Association, Birmingham, April 16.
n. Assn. of Pathologists and Bacteriologists, Philadelphia, Mar. 29-30.
erican Gastro-Enterological *Association*, Atlantic City, May 6-7.
rican Gynecological Society, Philadelphia, May 16-18.
n Orthopedic Association, Washington, D. C., April 22-23.
Medical Association, Phoenix, April 25-26.
Medical Society, Jonesboro, May 7-9.
of American Physicians, Atlantic City, May 7-8.
State Medical Society, Del Monte, April 16-18.
State Medical Society, Hartford, May 15-16.
e Medical Association, Savannah, April 17-19.
Medical Society, Fort Dodge, May 8-10.
al Society, Kansas City, May 1-3.
te Medical Society, New Orleans, April, 16-18.
al and Chir. Faculty of Baltimore, April 23-25.
Medical Society, Battle Creek, May 7-9.
Medical Association, Jackson, May 14-15.
edical Association, Jefferson City, May 6-8.
dical Association, Omaha, May 7-9.
e Medical Society, Pinehurst, April 16-18.
ical Association, Tulsa, May 14-16.
al Association, Aiken, April 16-18.
l Association, Memphis, April 9-11.

ASSOCIATION OF MILITARY SURGEONS OF THE U. S. ARMY IN FRANCE

Meeting held in Paris, Feb. 5, 1918

Relief of the Constriction of Wounds by Incision

Prof. A. Depage, Brussels: When we find ourselves in the presence of a flesh wound from a bullet, with punctiform orifice, we consider it useless in most cases to incise, the opening healing as a rule spontaneously, without showing any complications. We have, however, found exceptions in wounds from a gun fired point blank or at a short distance, such wounds being sometimes in pressing need of incisions. In fact, in these cases the projectile almost always causes a tearing of tissues, a veritable laceration, with an area of attrition more or less deep, in danger of mortification; it would be imprudent not to take measures of relief. We relieve by incisions also when the bullet has severed an important artery and when an aneurysmal hematome has manifested itself. Here, however, the greatest precautions and the avoidance of any carelessness are necessary. Cases of this kind are among the most serious, and should be undertaken only by an expert surgeon, very sure of himself. He should make the ligature of the two vascular or arterial ends, if the joining is possible. When a large artery is cut and the nutrition of the member is in danger, he can with great advantage use Tuffier's paraffined tube.

Big severed nerves form another class of wounds in which we incise immediately. We cannot insist too much, from the moment the patient arrives in the hospital, on the examination of the motor and sensory functions, in the region of the nerve supposed to be injured. The course to follow is summed up by the laying bare of the nerve, the suturing of the two ends, and the placing of the sutured nerve in the neighboring muscular tissue.

Fractures caused by bullets require in general an incision. The operation necessary depends more on the complications just cited than on the fracture itself.

In wounds from artillery projectiles, the conditions are not the same; wounds from bursting shells or bombs are much more serious and are practically always infected, and for this reason require more treatment. Only the small splinters the size of a grain of wheat are left in the flesh, especially if there are a great many of them. All the projectiles of more important dimensions are extracted, and the wound is treated according to the superficiality or depth of the lesion.

Subcutaneous setons, suppurating comparatively little, do not imperatively require incision. However, it is better to have recourse to it, because of the frequent presence of shreds of clothing in the wound, and we know the importance of these as germ vehicles. If circumstances permit, we extract the foreign matter *en masse* through the healthy tissue, and we make the suture at once.

If the wound is slight with subcutaneous course, the extraction of the projectile is in order. However, if the course is no more than 2 or 3 cm., we do not incise. We extract the foreign body with the shreds of clothing by means of a simple curet. If the course is longer, we treat it as a seton.

In deep setons, and penetrating wounds with the projectile included, the question is no longer debatable: incision is *necessary in every case.*

OBJECT OF TREATMENT

An incision, by opening wide the injured area, relieves the compression of the tissues, constricted by the aponeurotic covering, and helps the secretions. The surgeon who does the work aims to avoid serious septic complications and to encourage conditions favorable to healing and to suturing. To attain this double object, there must be eliminated from the wound, not only the infected foreign bodies (splinters, shreds of clothing, etc.), but also the contaminated tissues, such as injured or mortified flesh, favoring the spread of germs. Let us notice in this respect that the area of attrition, of cellular stupefaction, is not limited to the tissues that have been directly in contact with the projectile, but extends to a depth of from 0.5 to 1 cm., sometimes even to 2 cm. The vitality of these tissues is affected and there is a great advantage in not allowing them to remain for any length of time with elements less affected or completely unaffected. Subsequent progress of the wound and its rapid cure depend on the promptness of the first treatment and the care in its administration.

TECHNIC OF EXCISION OF DEAD TISSUE

Certain surgeons have recommended the removal of the traumatic matter *en masse* as one would take out a tumor. The length, depth and direction of the wound being exactly ascertained at need by the introduction of a metal conductor, and the wound being completely isolated from the field of operation, they circumscribe the opening with an oval incision, of which the large axis corresponds to the direction of the wound. They cut successively the skin, cellular tissues, the aponeurosis and the muscles, constantly keeping in healthy tissue, in such a way as to limit the area that surrounds the entire wound. Then they remove *en masse* the injured tissue, being careful to keep the healthy from the contaminated. The suture may follow immediately.

Such a complete operation would constitute without doubt an ideal method of treatment, if the traumatic sources were definitely limited and if we could cut into the flesh without considering the organs it surrounds. But it is needless to say that these conditions do not exist when it is a question of deep and extended lesions. It is better then to reserve this process solely for superficial and short wounds of which it was a question before.

The only incision truly rational consists in a wide opening of the seat of the wound, such as is practiced by the great majority of surgeons. Two things are necessary: the incision and the excision of tissues.

Incision.—Before proceeding to the excision of dead tissue, the surgeon must find out, as accurately as possible, the shape of the wound by different anatomic methods. They are indicated in the following manner:

1. For the setons, orifices of entrance and exit.
2. For the lesser wounds, the orifice of entrance, on the one hand, and the situation of the projectile as determined by the roentgen ray, the fluoroscope or the electric vibrator, on the other.

The form of the channel being determined, the incision must be made so as to permit a perfect access to the wound, without any further damage anatomically. According to our experience, the direction of the incisions must vary according to the part wounded and to the nature of the wound:

(*a*) In wounds of the arm, forearm and lower third of the leg, transverse incisions are inadmissible because of the danger of cutting important organs; longitudinal incisions alone are allowed. Whether it is a question of the lesion of a single aspect, or whether both the anterior and posterior aspects have been simultaneously affected, these incisions will always be sufficient to permit of complete excision of dead tissue.

The anterior aspect of the leg requires likewise a longitudinal incision; with this restriction, however, that in its upper third, a wound of the anterior tibial artery may demand a transverse cutting of the muscle.

(*b*) Wounds of the thigh (anterior and posterior surface), the popliteal space and the calf, wounds in seton and simple penetrating wounds, involving both aspects, must in general be treated by incisions parallel to the axis of the member. A transverse incision would not in this case offer any advantage, and would be of such a nature as to occasion very serious damage. Two longitudinal incisions, one in the anterior and the other in the posterior surface, will always permit of a wide approach to the seat of the wound.

In the case of a seton or deep penetrating wound, taking in only one aspect, longitudinal incisions would no longer suffice. The muscular masses are too thick to give access to the deep parts of the wound. It is important, however, that the latter should be deeply incised in order to avoid accidents of gas infection, especially to be feared in great muscular masses. Under these conditions, one will often be led to make a transverse incision, cutting all the organs or a part of the organs interposed between the cutaneous surface and the deep wound: on the anterior face of the thigh, the anterior muscle is incised, also the vastus externus, and perhaps the tendons of the fascia lata; on the posterior face, the biceps and the semimembranosus on the thick of the calf, the twin muscles; and on the posterior surface of the arm, the triceps

It goes without saying that the transverse incisions must concern only the muscles and the aponeurosis, and respect the nerves and the vessels.

After the excision of dead tissue, it is well when possible to reestablish the continuity of the severed muscles, with catgut stitches in U form, with the object of reuniting the two ends, suturing at least partially the aponeurosis and the skin The transverse incision thus made leaves no functional trace, on condition, of course, that the suture holds.

If there is any doubt on the subject of the cleanliness of the deep wound, the suturing of severed muscles may be postponed two or three days. By this time the surgeon will be sure of the nature and degree of the possible infection.

Under certain circumstances, when the excision is done late, and there is already a deep infection, immediate suture of the muscular ends must be given up.

Excision of Tissues.—If it is a question of superficial seton, the free edges of the two orifices are resected and these are reunited by cutting the intervening bridge of tissues, so as to transform the course of the wound into a groove. Then, with a pair of heavy scissors, the injured tissues are completely removed from the surface of the groove.

In case of a slight wound or a deep seton, one begins also by resecting the free edges of the orifices of entrance and exit for a distance of from 1 to 2 cm., circumscribing one of these orifices by an elliptic incision.

Each incision is enlarged according to the directions just given, so as to open the wound by one or by two incisions, according as to whether there is or is not an orifice of exit.

The superficial aponeurosis is incised on the same amount of surface as the skin. To follow then the course of the wound in its depth, precautions must be taken against introducing a conductor, such as a grooved probe, which might easily be lost in the muscular tissues. I think that the best way to reach the depth of the wound is to lift the edges of the muscles with two forceps, following the direction of the wound, and to resect the injured parts. If at any time one loses the direction, which happens often in the deeper parts of the wound, a gloved finger introduced into the opening will find it again without difficulty. It is important to notice that the cut muscles contract, and in the course of the work of cleaning, the ends must be looked for in order to excise the injured parts.

The injured muscles must be resected on all the surface of the wound up to the healthy tissue. This is recognized by its contractibility and by its redness, which contrasts with the dull color of the bruised flesh.

The incision in the course of its progress leads to the foreign body, which is extracted with the shreads of clothing. When the surface is largely exposed, it is well to irrigate the wound with neutral solution of chlorinated soda or with warm physiologic sodium chlorid solution, which shows up the bruised and wounded parts.

Concerning fractures, the question of removing bone splinters has been often discussed; surgeons are not yet agreed on this point. Some find it better to remove all splinters by the subperiosteal method; others cling to the idea that only those splinters that are free should be removed. The problem is difficult to solve, as only time and experience will bring us to a conclusion. This is my idea in this respect: If the wound is such that immediate suture may be attempted, I take out the fragments. If, on the contrary, it is evident that the suture cannot be made, by reason of the extent of damage, I do not remove any splinters in the course of the operation, considering it preferable to let those splinters affected by necrosis eliminate themselves spontaneously as fast as the growth progresses. This process has the great advantage of not being followed by a pseudarthrosis and of shortening noticeably the first operation, a thing to be taken into account when it is a question of a serious fracture, and the patient is in a state of shock.

SUTURE OF WOUNDS

When we incise a wound to prevent infection, we must at the same time try to put it in a state most favorable to a suture.

This may be done immediately after the excision of dead tissue: immediate suture, or within the first five or six days; by delayed primary suture, in which case it is executed, as in the immediate suture, by the simple approximation of the edges, or finally, the suture may be made after sterilizing the wound with neutral solution of chlorinated soda: secondary suture. The latter is done the eighth day, after the wound is covered with granulations. This necessitates always the freshening of the edges, and it is that which distinguishes it from the preceding sutures.

In immediate suture, the treatment varies according to the seat of the lesion: (*a*) For articular wounds, immediate suture is in order, unless the bony lesions are too extensive. (*b*) For wounds on the head, face, feet or hands, the richness of venous blood and lymphatic fluid allows the surgeon to make the immediate suture in perfectly systematic fashion. (*c*) For flesh wounds and fractures, indications for the immediate suture are very relative, but surgeons are inclined more and more to generalize them. The suture must be made within twelve hours after the wound has been inflicted and only when the surgeon can watch it during at least fifteen days. It offers, as special advantage, automatic reparation of the torn tissues, but the infections that it occasions are always rapid and serious diffuse phlegmonous infections or gas gangrene.

STATISTICS OF SUTURES

	Total No.	Complete Success No.	Complete Success Per Cent.	Partial Success No.	Partial Success Per Cent.	Failure No.	Failure Per Cent.
1.—Immediate Sutures—							
Head, face, hands, feet, large articulations	491	473	96.3	8	1.6	10	2.1
Without bone lesion	66	62	95.9	..	.....	4	6.1
With bone lesion........	79	71	89.8	1	1.2	7	9.0
Flesh wounds	380	319	83.9	24	6.3	39	9.8
Fractures: Femur	4	4	100.00	..	.....	..	.....
Other bones	26	20	76.92	3	11.54	3	11.54
2.—Delayed Primary Sutures—(done within the first six days)							
Head, face, hands, feet...	18	18	100.00	..	.....	..	.....
Flesh wounds	222	207	93.2	8	3.6	7	3.2
Fractures: Femur	...	...	.....	..	.....	..	.....
Other bones	20	16	80.00	4	20.00	..	.....
3.—Secondary Sutures—							
Head, face, hands, feet..	64	58	90.6	4	6.2	2	3.2
Flesh wounds	845	724	85.6	70	8.00	51	6.4
Fractures: Femur	39	30	76.9	7	17.9	2	5.2
Other bones	102	92	90.00	3	3.00	7	7.00

Delayed primary suture is especially adapted to flesh wounds and open fractures. It is done after bacteriologic tests, made in the following way: (*a*) At the first dressing (from twelve to twenty-four hours after excision of dead tissue) we make a culture test by direct examination. (*b*) At the second dressing (from thirty-six to forty-eight hours after excision of dead tissue) we take a new culture. If the first culture does not show the presence of streptococci, and if the microbic enumeration does not go beyond one microbe to two fields, we make a suture. We never suture if the enumeration at the second dressing shows a rising in the microbic curve, even if the microbes are not streptococcic. The delayed primary suture rarely results in failure, involving serious accidents. It offers the inconvenience of requiring two operations; but the second is of minor importance.

Secondary suture is reserved for wounds nonsuturable during the first days because of too much torn tissue or some threatened infection. It offers the great advantage of giving perfect security, but it retards the cure and never gives so complete an anatomic restitution as the preceding sutures. We use it regularly when the microbic curve keeps below one microbe to four fields in two successive examinations, and the culture discloses no streptococci. The deplorable results obtained in those cases have allowed us to establish fairly exact rules on the treatment of wounds, for and against, by suturing.

The accompanying table gives statistics of sutures made in our hospital from May, 1916, to November, 1917. A large part of the failures are due to streptococci in the wound.

Chest Wounds

Professor Tuffier, Paris: These injuries were received at the front, and all were due to firearms. They were of different types of severity, and in different portions of the lung. Those nearest the root of the lung were the most difficult to deal with. In the majority of cases, some foreign body was buried in the pulmonary tissue, usually pieces of shell, etc., with particles of clothing. The lung tissue is not as susceptible to infections as other tissue. I have never seen a case of gas bacillus infection of the lung, or a case of tetanus after a pulmonary injury. This is to be attributed to the very active blood supply, and the presence of oxygen in the tissues I have heard of exceptional cases, but have never seen one. The patients were roentgenographed, and the foreign body located. The chest was often opened for severe hemothorax. A severe hemothorax in the pleura will not absorb without fever (secondary infection), etc., and it is much better to open the chest and remove the blood.

In cases without distressing symptoms, I wait until the fifth or sixth day before operating, but in severe cases with extreme hemothorax, when the heart is crowded to the opposite side and with dyspnea, I believe it safer to operate at once than to wait. Before opening the chest, if not in the region of the wound, the most accessible point, particularly in cases of hemothorax, should be selected, as this may be confined to the posterior region, and the opening may be anterior. A portion of the rib is resected and strong traction made on the margins of the wound. This will usually give an accessible field. After the removal of the foreign body, the hemorrhage should be controlled, and the parietal pleura closed. It is especially desirable to have the pleura closed. All wounds are closed primarily, by first closing the parietal pleura, the latter being essential. The lung soon expands when the pleura is closed, and assumes its normal function. In some cases it is necessary to make more than one opening in the chest wall, as there may be multiple injuries of the chest. In some very severe cases of chest injury, the patients now appear to be normal. Local anesthesia is employed first, followed by a general anesthetic. There does not seem to be much cause for alarm with regard to the anesthetic, as all these patients recovered. The operations in the chest are almost as successful as those within the abdomen, and the same principles of surgery are followed.

There are fewer cases of infection now, than at the beginning of the war, and the results are much better, as a result of the improved methods of transportation of the wounded. In the early days of the war we used many horse ambulances, and did not have equipped hospital trains, and many of the wounded did not arrive at the hospital until twenty-four or thirty-six hours after the injury was infected. All wounded patients should be treated as soon as possible.

The hospital of Professor Depage is situated in Lepenne. It is on that small portion of Belgian territory unoccupied by the enemy, and is situated just beyond the shell fire range. The surgical work done in this hospital is considered by all surgeons to be probably the best of any work done in Europe. *It is the Mecca for surgeons. The first question that comes* to the surgeon's mind is "Why so few infections, and such good results?" The answer is, "His hospital is close to the line. *He receives his patients early, two or three hours after* injury. The patients have not passed through two or three dressing stations. The wounds may be contaminated, but not infected. It is the condition in which the patient is received, and his splendid surgical work of experience, that give the result."

It is the opinion of the French, British and Belgian surgeons that the earlier the patients are operated on, the better the result. They now have had three and a half years' experience in military surgery, and if they were again to arrange their hospital system, I think it would be different.

I would suggest that the American medical corps take advantage of our experience, and I think it would be wi if our base hospitals were divided into an operating hospital and a base, the operating hospital to be located as near the line as thought safe. Here the operating could be done, and the patients remain for a time. This would be different from the ordinary casualty clearing station. The hospital should have 500 or 600 beds, so that the patient may remain there for several days after the operation. It has also been proved that patients removed shortly after operations do not do as well as those who are allowed to remain for a time. That is, the hospital should be divided into an operating hospital and a base, all under one control, with the surgical operating staff all at the advanced hospital.

DISCUSSION

It was the opinion of the surgeons present that the British system had too many dressing stations. One or two could be done away with to advantage. And their bases are too far from the line. The fewer times the wounds are dressed before the final operation, the better, and the sooner after the injury the patient is operated on, and wounds closed, the better the result. From the foregoing the following conclusions were offered:

1. A well organized operating hospital should be located as close to the front as thought safe, and in a position to be evacuated quickly if necessary.
2. This hospital should be equipped with operating facilities, and in charge of the operating portion of the staff.
3. The hospital should have a sufficient number of beds, so that the patient may remain several days following an operation.
4. The base hospital and the advanced operating hospital should be managed as one, and the patients evacuated from the advanced to the base, with their surgical records, and kept under the care of the same unit.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

January, 1918, 74, No. 3

1 Principles of Diagnosis in Psychiatry. E. S. Abbot.—p. 369.
2 Study of Neuroglia in Case of Sarcoma of Brain. C. Ricksher.—p. 381.
3 *Clinical and Anatomic Analysis of Two Cases of Multiple Sclerosis. L. G. Lowrey.—p. 395.
4 Problem of Individual Patient in Large Hospitals. W. A. White.—p. 405.
5 Prevention of Insanity and Degeneracy. C. W. Burr, Philadelphia.—p. 409.
6 Extra Asylum Psychiatry. L. P. Clark, New York.—p. 425.
7 *Does Paretic Gold Sol Curve in Psychiatric Cases Always Indicate Syphilis of Nervous System? P. G. Weston, Warren, Pa.—p. 431.
8 Revelations of Unconscious in Toxic (Alcoholic) Psychosis. C. C. Wholey, Pittsburgh.—p. 437.
9 Malingering. Problematical Case. W. C. Sandy, Columbia, S. C.—p. 449.
10 Occupational and Industrial Therapy. How Can this Important Branch of Treatment of Our Mentally Ill Be Extended and Improved? L. V. Briggs, Boston.—p. 459.

3. **Analysis of Cases of Multiple Sclerosis.**—A man whose trouble began with a "shock" at the age of 26, who had numerous convulsions through a period of years and whose neurologic symptoms varied from time to time, showed at necropsy an area of gliosis in the left parietal lobe, together with patchy gliosis in the cord. His condition had been diagnosed syphilitic dementia, brain tumor, multiple sclerosis and epilepsy. A girl of 19, previously immoral, was found to have spinal fluid changes such as are found in neurosyphilis (except that the Wassermann test was negative), together with marked and varying neurological symptoms. The necropsy showed a meningitis of mild grade, together with an extremely pronounced multiple sclerosis. Lowrey says that the relationship between the neurosyphilis (?) and the sclerosis is obscure. They may stand in the relation of cause and effect, or they may be coincident, or both meningitis and sclerosis may be due to some other cause. Two unusual combinations of lesions are presented: (*a*) large focal lesion of cortical gray matter in multiple sclerosis; (*b*) combination of meningitis and multiple sclerosis.

7. **Does Colloidal Gold Curve Indicate Syphilis?**—In the course of 1,500 routine examinations of spinal fluid (Wassermann reaction, globulin tests, cell count and colloidal gold reaction) Weston found that the fluid from three patients, who had no history of syphilis and no positive Wassermann reactions and two negative syphilitic tests, caused a precipitate of colloidal gold in the paretic zone.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

February, 1918, 77, No. 2

11 Evolution of Male Midwife, with Some Remarks on Obstetric Literature of Other Ages. H. D. King, New Orleans.—p. 177.
12 Should Uterus Be Removed When it Becomes Imperative to Interrupt Pregnancy? E. Marvel, Atlantic City, N. J.—p. 186.
13 Use of Chloroform in Labor. I. L. Hill, New York.—p. 188.
14 Retained Secundines; Study of Etiologic Factors. J. E. Davis, Detroit.—p. 192.
15 *Methods for Overcoming Mechanical Obstructions to Pregnancy. R. T. Morris, New York.—p. 208.
16 Version; Report of Two Hundred Cases Since September, 1916. I. W. Potter, Buffalo.—p. 215.
17 Management of Labor in Narrow Pelvis. E. G. Zinke, Cincinnati.—p. 221.
18 Case of Gangrene of Uterine Fibroid Following Parturition; Panhysterectomy. R. Waldo, New York.—p. 230.
19 Osteoma of Descending Ramus of Pubes and Ascending Ramus of Ischium Obstructing Pelvic Outlet; Pregnancy. Removal of Osteoma. J. N. West, New York.—p. 232.
20 Case of Pregnancy with Unusual Complications. M. A. Tate, Cincinnati.—p. 235.
21 Ten Years' Experience with Early Mobilization after Abdominal Pelvic Operations. D. W. Tovey, New York.—p. 237.
22 Uncinariasis in Pregnancy. G. F. Wilson, Charleston, S. C.—p. 247.
23 *Rationale of Roentgen Therapy and Radium in Uterine Hemorrhage. J. A. Corscaden, New York.—p. 250.
24 Large Pedunculated Cavernous Angioma of Liver Reaching Down into Pelvis and Causing Obstetric Difficulty. I. C. Rubin, New York.—p. 273.
25 Complete Pelvic Obstruction Due to Fibromyomas as Cause of Puerperal Psychoses. H. P. DeForest, New York.—p. 276.
26 Pathology and Surgical Treatment of Gonorrheal Infection of Female Generative Organs. J. W. Kennedy, Philadelphia.—p. 282.
27 Pathology and Treatment of Peritoneal and Pelvic Tuberculosis. H. A. Duncan, Philadelphia.—p. 288.
28 Modification of Technic of Cesarean Section with Hysterectomy. E. A. Schumann, Philadelphia.—p. 297.
29 *Pregnancy in Cases of Tuberculosis of Lungs. J. Walsh, Philadelphia.—p. 292.

15. Abstracted in The Journal, Oct. 27, 1917, p. 1467.

23. **Roentgen Therapy and Radium in Uterine Hemorrhage.**—Comparing the roentgen ray and radium, Corscaden says, that radium is preferable in practically all cases except in younger women, in whom small repeated doses may be desired. While the actual amount of time consumed in treatment is about the same in both, that devoted to the roentgen ray is spread over from six to ten weeks, while the radium is finished in twenty-four hours. Usually a whiff of nitrous oxid has to be given for the insertion of the radium. Since practically all older women should be curetted to exclude carcinoma, both procedures are carried out at the same time. Uterine hemorrhage from almost any cause may be stopped by the intra-uterine application of radium, and the hemorrhage from disturbed menstruation with or without fibromyoma may be controlled by the roentgen ray. Also, practically all fibromyomas will shrink to a satisfactory degree after roentgen therapy. Practically no harm results from roentgen therapy in these cases. All cases of hemorrhage from a grossly normal uterus in women of 38 or over should be treated by roentgen therapy after carcinoma has been ruled out. In younger women roentgen therapy should be used as a late resort. In cases of uterine hemorrhage associated with fibromyoma of the uterus, roentgen therapy is the proper treatment, if symptoms from mechanical causes are absent and the woman is 38 or over.

into account when it is a question of a serious fracture, and the patient is in a state of shock.

SUTURE OF WOUNDS

When we incise a wound to prevent infection, we must at the same time try to put it in a state most favorable to a suture.

This may be done immediately after the excision of dead tissue: immediate suture, or within the first five or six days; by delayed primary suture, in which case it is executed, as in the immediate suture, by the simple approximation of the edges, or finally, the suture may be made after sterilizing the wound with neutral solution of chlorinated soda: secondary suture. The latter is done the eighth day, after the wound is covered with granulations. This necessitates always the freshening of the edges, and it is that which distinguishes it from the preceding sutures.

In immediate suture, the treatment varies according to the seat of the lesion: (*a*) For articular wounds, immediate suture is in order, unless the bony lesions are too extensive. (*b*) For wounds on the head, face, feet or hands, the richness of venous blood and lymphatic fluid allows the surgeon to make the immediate suture in perfectly systematic fashion. (*c*) For flesh wounds and fractures, indications for the immediate suture are very relative, but surgeons are inclined more and more to generalize them. The suture must be made within twelve hours after the wound has been inflicted and only when the surgeon can watch it during at least fifteen days. It offers, as special advantage, automatic reparation of the torn tissues, but the infections that it occasions are always rapid and serious diffuse phlegmonous infections or gas gangrene.

STATISTICS OF SUTURES

	Total No.	Complete Success No.	Complete Success Per Cent.	Partial Success No.	Partial Success Per Cent.	Failure No.	Failure Per Cent.
1.—Immediate Sutures—							
Head, face, hands, feet, large articulations	491	473	96.3	8	1.6	10	2.1
Without bone lesion	66	62	95.9	..	.....	4	6.1
With bone lesion........	79	71	89.8	1	1.2	7	9.0
Flesh wounds	380	319	83.9	24	6.3	39	9.8
Fractures: Femur	4	4	100.00	..	.....	..	.....
Other bones	26	20	76.92	3	11.54	3	11.54
2.—Delayed Primary Sutures—(done within the first six days)							
Head, face, hands, feet...	18	18	100.00	..	.....	..	.....
Flesh wounds	222	207	93.2	8	3.6	7	3.2
Fractures: Femur	...	...	.....	..	.....	..	.....
Other bones	20	16	80.00	4	20.00	..	.....
3.—Secondary Sutures—							
Head, face, hands, feet..	64	58	90.6	4	6.2	2	3.2
Flesh wounds	845	724	85.6	70	8.00	51	6.4
Fractures: Femur	39	30	76.9	7	17.9	2	5.2
Other bones	102	92	90.00	3	3.00	7	7.00

Delayed primary suture is especially adapted to flesh wounds and open fractures. It is done after bacteriologic tests, made in the following way: (*a*) At the first dressing (from twelve to twenty-four hours after excision of dead tissue) we make a culture test by direct examination. (*b*) At the second dressing (from thirty-six to forty-eight hours after excision of dead tissue) we take a new culture. If the first culture does not show the presence of streptococci, and if the microbic enumeration does not go beyond one microbe to two fields, we make a suture. We never suture if the enumeration at the second dressing shows a rising in the microbic curve, even if the microbes are not streptococcic. The delayed primary suture rarely results in failure, involving serious accidents. It offers the inconvenience of requiring two operations; but the second is of minor importance.

Secondary suture is reserved for wounds nonsuturable during the first days because of too much torn tissue or some threatened infection. It offers the great advantage of giving perfect security, but it retards the cure and never gives so complete an anatomic restitution as the preceding sutures. We use it regularly when the microbic curve keeps below one microbe to four fields in two successive examinations, and the culture discloses no streptococci. The deplorable results obtained in those cases have allowed us to establish fairly exact rules on the treatment of wounds, for and against, by suturing.

The accompanying table gives statistics of sutures made in our hospital from May, 1916, to November, 1917. A large part of the failures are due to streptococci in the wound.

Chest Wounds

Professor Tuffier, Paris: These injuries were received at the front, and all were due to firearms. They were of different types of severity, and in different portions of the lung. Those nearest the root of the lung were the most difficult to deal with. In the majority of cases, some foreign body was buried in the pulmonary tissue, usually pieces of shell, etc., with particles of clothing. The lung tissue is not as susceptible to infections as other tissue. I have never seen a case of gas bacillus infection of the lung, or a case of tetanus after a pulmonary injury. This is to be attributed to the very active blood supply, and the presence of oxygen in the tissues I have heard of exceptional cases, but have never seen one. The patients were roentgenographed, and the foreign body located. The chest was often opened for severe hemothorax. A severe hemothorax in the pleura will not absorb without fever (secondary infection), etc., and it is much better to open the chest and remove the blood.

In cases without distressing symptoms, I wait until the fifth or sixth day before operating, but in severe cases with extreme hemothorax, when the heart is crowded to the opposite side and with dyspnea, I believe it safer to operate at once than to wait. Before opening the chest, if not in the region of the wound, the most accessible point, particularly in cases of hemothorax, should be selected, as this may be confined to the posterior region, and the opening may be anterior. A portion of the rib is resected and strong traction made on the margins of the wound. This will usually give an accessible field. After the removal of the foreign body, the hemorrhage should be controlled, and the parietal pleura closed. It is especially desirable to have the pleura closed. All wounds are closed primarily, by first closing the parietal pleura, the latter being essential. The lung soon expands when the pleura is closed, and assumes its normal function. In some cases it is necessary to make more than one opening in the chest wall, as there may be multiple injuries of the chest. In some very severe cases of chest injury, the patients now appear to be normal. Local anesthesia is employed first, followed by a general anesthetic. There does not seem to be much cause for alarm with regard to the anesthetic, as all these patients recovered. The operations in the chest are almost as successful as those within the abdomen, and the same principles of surgery are followed.

There are fewer cases of infection now, than at the beginning of the war, and the results are much better, as a result of the improved methods of transportation of the wounded. In the early days of the war we used many horse ambulances, and did not have equipped hospital trains, and many of the wounded did not arrive at the hospital until twenty-four or thirty-six hours after the injury was infected. All wounded patients should be treated as soon as possible.

The hospital of Professor Depage is situated in Lepenne. It is on that small portion of Belgian territory unoccupied by the enemy, and is situated just beyond the shell fire range. The surgical work done in this hospital is considered by all surgeons to be probably the best of any work done in Europe. It is the Mecca for surgeons. The first question that comes to the surgeon's mind is "Why so few infections, and such good results?" The answer is, "His hospital is close to the line. He receives his patients early, two or three hours after injury. The patients have not passed through two or three dressing stations. The wounds may be contaminated, but not infected. It is the condition in which the patient is received, and his splendid surgical work of experience, that give the result."

It is the opinion of the French, British and Belgian surgeons that the earlier the patients are operated on, the better the result. They now have had three and a half years' experience in military surgery, and if they were again to arrange their hospital system, I think it would be different.

I would suggest that the American medical corps take advantage of our experience, and I think it would be wise

Arkansas Medical Society Journal, Little Rock

February, 1918, 14, No. 9

38 Placenta Praevia. L. T. Evans, Mount Pleasant.—p. 181.
39 Squint; Importance of Early Correction. R. H. T. Mann, Texarkana.—p. 183.
40 Diagnosis of Surgical and Neurotic Borderline Cases. J. N. White, Texarkana.—p. 184.

Boston Medical and Surgical Journal

Feb. 28, 1918, 178, No. 9

41 *Back Troubles. H. W. Marshall, Boston.—p. 279.
42 *Lithiasis with Bilateral Renal Involvement. W. F. Braasch, Rochester, Minn.—p. 292.
43 Fractures of Neck of Femur; Report of Three Cases. C. L. Ayers, Worcester.—p. 298.

41. **Back Troubles.**—Among the 100 cases analyzed by Marshall there were 33 cases of hypertrophic arthritis of the spine. Fourteen cases had to be diagnosed from clinical appearances without roentgen rays; 19 cases had roentgenograms taken some time during their course of hospital visits. These showed the following results: six were negative for hypertrophic changes; 13 were positive for hypertrophic changes; 5 showed vertebral variations; 1 showed metastatic new growth of vertebrae; 1 showed beginning tuberculosis of spine; 1 showed a probable fracture of vertebra. Eight cases were associated with traumas at onset of symptoms. Eight cases were considered back strains also, at some time during their course. No diagnosis of infectious arthritis was made, although numerous foci were present. The average age of these 33 patients was 49 years. Thirty-four cases of infectious arthritis of the spine.—Twenty-one cases were diagnosed from clinical histories, without roentgen rays; 13 cases had roentgenograms taken which showed the following results: 6 showed positive hypertrophic bony changes; 3 showed vertebral variations; 3 showed obscure bony lesions. Four cases were considered to represent back strains also, at some time during their course. Two cases were associated with traumas at onset of symptoms. The average age of these 34 patients was 33 years. Thirty-three cases of back strains.—Twenty-four cases were diagnosed from clinical histories without roentgen rays. Nine cases had roentgenograms taken which showed the following results: 1 showed definite hypertrophic bony changes; 6 showed vertebral variations; 1 suggested spinal tuberculosis; 1 suggested a fracture of a vertebra. Nine cases were associated with definite traumas at onset. Nine cases had foci of infection which justified a diagnosis of infectious arthritis. The average age was 33 years.

42. **Lithiasis with Bilateral Renal Involvement.**—In 17.2 per cent. of the sixty patients in this series there was bilateral renal involvement. The percentage of bilateral lithiasis was 12.3. Pain in bilateral nephrolithiasis was unilateral in 64 per cent. and absent in 8 per cent. of the cases. Bilateral stones were found most frequently in the pelves and calices. Combined renal functional tests were of practical value only when normal or extremely low. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive. The functional test, roentgen-ray examination and cystoscopic inspection may be insufficient in determining the degree of healthy renal tissue remaining, and exploration only can determine this. Indications for operation: (*a*) The kidney with acute complications should be operated on first; (*b*) without acute complications the kidney with the better tion should be operated on first; (*c*) occasionally simul- cous bilateral operation is advisable. Patients may be operable because of renal insufficiency, secondary infection, idney destruction or constitutional complications. Patients with large bilateral stones causing no symptoms or complications are better off without operation. The operative mortality in this series was zero; the total number of deaths after operation, ten; these patients died less than a year following operation. The recurrences in cases of bilateral nephrolithiasis was 20 per cent.; in unilateral lithiasis it was 10 per cent.

When there is stone in one kidney the most common forms of disease in the opposite kidney are: pyelonephritis, pyonephrosis and hydronephrosis. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value. When the nephritic element predominates, removal of the stone is not of much therapeutic value. A single kidney has a great degree of tolerance for repeated operation for stone. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may, if necessary, include heminephrectomy.

Bulletin of Johns Hopkins Hospital, Baltimore

February, 1918, 29, No. 324

44 Interstitial Pregnancy; Report of Case. H. M. U. Wynne, Baltimore.—p. 29.
45 *Transplantation of Trachea. W. C. Burket, Baltimore.—p. 35.
46 Experiments in Artificial Production of Amyloid. K. Hirose, Baltimore.—p. 40.

45. **Transplantation of Trachea.**—With the purpose in view of the possible utilization of a tracheal transplant in human cases in which a portion of the trachea has been resected on account of malignant disease, Burket undertook to study the transplantation of the trachea in dogs. The animals were kept under ether anesthesia by mouth or through a tracheotomy wound. The tracheal segments from the different sized animals were readily adapted in size to one another because of the anatomic fact that the cartilaginous portion of the tracheal rings was not complete and the posterior wall was formed of fibroelastic tissue. After operation five of the animals had a hoarse voice, a dry cough, and a rather stiff neck, which, when walking, they would occasionally shake from side to side, especially in the case of the dogs with the long transplants. Although otherwise their general condition remained very well, yet after from one to three weeks they developed marked symptoms of tracheal obstruction with dyspnea, and died. Necropsy revealed a normal esophagus and lungs, and a stricture of the trachea at the site of the transplant. In these unsuccessful cases, the dogs with the short tracheal transplants lived from one to two weeks, while the animals with the long transplants lived approximately three weeks. The cases of isotracheal transplants resulted in death with symptoms similar to the unsuccessful cases of autotransplants, and necropsy showed normal lungs with stricture of the trachea at the region of the transplant. The three successful transplant cases showed no symptoms and gave every evidence that they were as healthy and normal as before operation.

Canadian Medical Association Journal, Toronto

February, 1918, 8, No. 2

47 Anthrax in Man; Report of Two Cases. C. H. Gilmour and A. R. Campbell.—p. 97.
48 Suprapubic Prostatectomy. N. H. Beal, London, Ont.—p. 108.
49 Surgical Treatment of Pernicious Anemia. C. K. P. Henry, Montreal.—p. 115.
50 Minor Infections and Quarantine. T. H. Whitelaw, Edmonton.—p. 122.
51 How Medical Health Officer Can Become Cooperative Social Force in Rural Districts. P. H. Bryce, Ottawa.—p. 129.
52 Development of Hemorrhagic Disease Following Injury to Liver. E. M. von Eberts, Montreal.—p. 139.
53 Case of Anthrax of Face. C. K. P. Henry and W. J. Scott.—p. 142.

Georgia Medical Association Journal, Augusta

February, 1918, 7, No. 10

54 Roentgen Ray Therapeutics; Report of Cases. T. B. King, Sandersville.—p. 201.
55 Emergency Head Surgery. C. E. Dowman, Atlanta.—p. 206.
56 Urinary Symptoms in Female. R. L. Rhodes, Augusta.—p. 211.
57 Major Operations Under Local Anesthesia. W. A. Selman, Atlanta.—p. 212.
58 Septic Infarcts of Kidney. G. R. White, Savannah.—p. 215.
59 Significance and Diagnosis of Conditions Causing Blood in Urine. E. P. Merritt, Atlanta.—p. 217.
60 Specialization, What Does It Mean? W. B. Emery, Atlanta.—p. 219.

Iowa State Medical Society Journal, Des Moines

February, 1918, **8**, No. 2

61 Typhoid in Iowa. M. Levine and H. E. Middleton, Ames.—p. 37.
62 Nontuberculous Infections of Kidney. M. J. Moes, Dubuque.—p. 41.
63 Tumors of Kidneys. R. E. Green, Creston.—p. 43.
64 Renal Functional Tests and Pyelography in Kidney Diagnosis. N. G. Alcock, Iowa City.—p. 45.
65 Surgical Conditions of Kidney. C. J. Rowan, Iowa City.—p. 49.
66 Diagnosis of Chronic Bone Lesions. A. Steindler, Iowa City.—p. 53.

Journal of Cutaneous Diseases, Chicago

February, 1918, **36**, No. 2

67 Etiology and Pathology of Skin Cancer. F. G. Harris, Chicago.—p. 67.
68 Treatment of Skin Cancer. G. M. MacKee, New York.—p. 92.
69 Case of Darier's Disease (Keratosis Follicularis); Roentgen Ray Treatment. A. Schalek, Omaha.—p. 104.

Journal of Laboratory and Clinical Medicine, St. Louis

February, 1918, **3**, No. 5

70 *Methods of Control of Clothes Louse [Pediculus Humanus Vestimenti]. W. Moore, St. Paul, Minn.—p. 261.
71 *Etiology of Scarlet Fever. R. W. Pryer and J. B. Kelly, Detroit.—p. 269.
72 *Factors of Coagulation in Blood in Certain Pathologic Conditions. D. F. Pettibone, Rochester, Minn.—p. 275.
73 *Chronic Tonsil Infections. J. J. Moore, Chicago.—p. 283.
74 *Rapid Colorimetric Method for Estimating Glucose in Urine. V. I. Isaacson, New York.—p. 289.
75 Serum Veal Agar; Dependable Substitute for Ascitic or Blood Agar. N. S. Ferry and A. Noble, Detroit.—p. 295.
76 Peptone Free Media for Routine Culture Work. N. S. Ferry and A. Noble, Detroit.—p. 298.
77 *Simple Test for Glycuronates in Urine. F. C. Askenstedt, Louisville, Ky.—p. 300.
78 Antigen for Use in Complement Fixation in Tuberculosis. M. S. Fleisher and G. Ives, St. Louis.—p. 302.

70. **Control of Clothes Louse.**—Moore shows that sachets are not successful. Talc, 20 gm.; creosote, 1 c.c., and sulphur, 0.5 gm., is six times as effective a louse powder as naphthalene, creosote and iodoform, causing less irritation to the skin and, being dry, is easier to apply. Impregnation of the underwear does not appear promising, but a cheesecloth suit impregnated with saturated solution of sulphur in creosote could be successfully worn outside the underwear. Chlorpicrin can be used as a fumigant, penetrating the clothing and killing the lice in all parts of the clothing in fifteen minutes and the eggs in thirty minutes. By increasing the heat in the fumigation chamber, the time required to kill the eggs could be reduced.

71. **Etiology of Scarlet Fever.**—The blood of twenty-four cases showing typical symptoms of scarlet fever was examined by Pryer and Kelly. In nineteen, or 79 per cent., of these cases a diphtheroid organism has been isolated in pure culture. In six normal individuals a diphtheroid organism, morphologically and culturally identical with the one isolated from the nineteen cases of scarlet fever, was isolated from the blood of four. In cases of disease other than scarlet fever this organism was found in one case of measles, and two out of five cases of diphtheria. A large polymorphic organism was isolated from the blood of a man dying of scarlet fever.

72. **Coagulation of Blood in Certain Pathologic Conditions.**—Among the 45 cases studied by Dorothy Pettibone are 2 of hemophilia, 7 of myelogenous leukemias, 2 of purpura, 9 of epilepsy, 12 of jaundice (10 obstructive and 2 hemolytic) and 13 of a miscellaneous group. There was a marked calcium deficiency in jaundice cases of several weeks' duration. Platelets were present in normal numbers. The blood of hemorrhagic purpuras was deficient in platelets. There was no retraction of the clot. Estimation of platelets was of value in differentiating between hemorrhagic purpuras and hemophilias. The coagulation time of epileptic blood was within normal limits. Prothrombin was slightly diminished in pernicious anemia. There was a tendency in myelocytic leukemias for prothrombin time to be prolonged beyond the normal limits of from six to fourteen minutes, although the coagulation time was within normal limits. There was a characteristic delay in coagulation in the blood of hemophiliac cases. There was also deficiency in prothrombin. Platelets were present in normal numbers and have normal retractile powers. There was apparently no deficiency in calcium. One patient of special note among the hemophilias had an extremely long coagulation time though his prothrombin time was within normal limits. His mother had a normal coagulation time but a markedly delayed prothrombin time.

73. **Chronic Tonsil Infections.**—Moore cites examples which suggest that the infectious organism or virus of many diseases which have as their portals of entry the upper respiratory system, may lodge either permanently, or for a long period in the crypts of the tonsils, thus producing the state which we term a "chronic carrier." The removal of the infected tonsil may aid materially in controlling such diseases.

74. **Colorimetric Estimation of Glucose in Urine.**—This method depends on the fact that alkaline copper sulphate solutions are reduced by glucose at higher temperatures. The quantity of copper sulphate reduced is computed indirectly by determining the amount left unreduced. This latter portion is measured in a colorimeter by comparing the intensity of its blue ammonia compound with a standard solution of the same substance.

77. **Simple Test for Glycuronates in Urine.**—Askenstedt's test combines simplicity with a fair degree of accuracy. The urine to be examined is diluted with water until its specific gravity is reduced to 1.001. For example, if the urine has a specific gravity of 1.015 (correction being made for temperature), dilute 1 c.c. of urine with 14 c.c. of water; if the specific gravity is 1.021, dilute 1 c.c. with 20 c.c. of water. (Diabetic urine should be diluted until its urea content is 0.1 per cent.). To 10 c.c. of the diluted urine in a test tube add 1 or 2 drops of a 1 per cent. solution of alphanaphthol in glycerin (alcohol impairs the test), and then 10 c.c. hydrochloric acid, specific gravity 1.19. Mix by turning the tube over once or twice. Then let the tube stand in a dark, cool place for about twelve hours, after which the reaction is noted in reflected light. This is best done by holding a white surface, as, for example, a white blotter, behind the tube. Normally the fluid will remain colorless or show a mere suggestion of blue. If glycuronates are present in excess, there will appear a proportionate blue color, tinged with red. The depth of the color may be denoted by the customary use of plus signs, medium blue, the deepest color observed in the above dilution, being designated with + + + +. If greater accuracy of estimation is desired, a standard solution of indigo blue, containing some indigo red, in sulphuric acid, may be employed by dropping it into another test tube of the same size, containing 20 c.c. of water. The tube receiving the standard solution is turned over after each drop is added and comparison of the two tubes is made, this procedure being continued until the nearest likeness of color is obtained, when the number of drops added is recorded. In twenty-four hours, or later, a slight cloudiness, with fading of color, appears ultimately forming a sediment.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

February, 1918, **47**, No. 2

79 *Tabes Dorsalis. M. Grossman, New York.—p. 81.
80 *Treatment of Delirium Tremens by Spinal Puncture, Stimulation and Use of Alkali Agents. H. H. Hoppe, Cincinnati.—p. 93.
81 Meningitis Due to Shell Wound. C. B. Craig.—p. 100.
82 Dystonia Musculorum Deformans; Report of Case and Review of Literature. M. Kerschner, Brooklyn.—p. 103.
83 Consideration of Pathogenesis of Epilepsy. L. J. Pollock, Chicago.—p. 114.
84 *Some Experiments Bearing on Flow of Lymph in Nerves. L. B. Alford and S. I. Schwab, St. Louis.—p. 118.

79. **Tabes Dorsalis.**—Grossman's paper is based on the study of 240 cases of undoubted tabes. The average age of syphilitic infection, dated from the primary chancre, was 24.4 years. The average age of onset of tabes was 39 years. No detectable difference existed in the age of onset of tabes in those patients treated with antisyphilitic remedies and in the age of onset in those untreated or presumably less treated.

The probable average preataxic period is three years. The average life expectancy of the bedridden tabetic was 53 years. Among those tabetics who become bedridden, a short ataxic period usually follows a short preataxic period. The cause of death in tabes is syphilis. Syphilis and tabes lead to death through cardiovascular and renal degeneration, and through weakened resistance of nonsyphilitic infections. The average age at which death occurs is 53 years. The mortality among tabetics over 53 years of age is 238 per thousand Tabes is as nonlethal as any form of syphilis.

80. **Treatment of Delirium Tremens.**—Following is the routine treatment for delirium tremens employed by Hoppe in the Cincinnati General Hospital. Catharsis is used as a routine measure, calomel, followed by a rather large dose of epsom salts. Tincture of digitalis and tincture of nux vomica, 10 drops of each, are given by mouth every three hours. In the active state of delirium strychnin and digitalin are given hypodermatically. Hoppe says that this stimulation is the most essential part of the treatment. In mild cases the indication for alkalies is met by the use of the imperial drink with lemon juice. Prolonged hot baths and hot packs are given twice a day, chloral and bromids are given only at night, and then not more than 2 to 3 doses during the twelve hours. In ordinary mild cases of delirium tremens, uncomplicated with kidney trouble, the above treatment is sufficient and the disease runs a very mild course. In the more severe cases, and at present a routine treatment, spinal puncture is resorted to as soon as the patient begins to have hallucinations. From 30 to 60 c.c. are usually withdrawn. The withdrawing of the fluid is followed by a rapid reduction of the delirium, especially in cases which have had preliminary stimulation and alkalinization. If the delirium returns, spinal puncture is repeated. If the delirium still continues notwithstanding the spinal puncture, or if the patient is pale and covered with perspiration with a low muttering delirium, an intravenous injection of physiologic sodium chlorid solution is given, or what has been found to be of more use, especially in cases with frequent convulsions and deficient kidney function, Fisher's solution. Of 105 cases, which seemed clinically uncomplicated, eight patients died, a mortality of 7.6 per cent. During the previous ten years, when the routine treatment was catharsis and sedatives, the mortality was 18.5 per cent.

84. **Flow of Lymph in Nerves.**—The hypothesis that there is a flow of lymph along nerve trunks in a central direction has been advanced and has been used in explaining the situation of the lesion in paresis, tabes dorsalis, herpes zoster and other affections of the nervous system, and in accounting for some of the facts of tetanus, rabies and poliomyelitis. It is supported by the results of a number of experiments. In attempting to repeat and amplify some of these experiments, Alford and Schwab injected a solution of certain iron salts, and of fuchsin, India ink, turpentine, and ether into nerve trunks of animals, but found no evidence of the existence of an ascending lymph stream. It was found, however, that when certain substances, particularly turpentine and ether, are injected into nerve trunks, they flow along under the sheath for long distances and may enter the subarachnoid and subdural spaces. This fact, and not the presence of an ascending lymph stream, may account for some results of other observers. It was also found that ether injected into infra-orbital branches in the cheeks passes into and causes a degeneration of the Gasserian ganglion. It is suggested by the authors that this method might be used in the treatment of trifacial neuralgia.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, 1918, **11**, No. 1

85 *Comparative Activity of Local Anesthetics. I. Paralysis of Sensory Nerve Fibers. T. Sollmann, Cleveland.—p. 1.
86 *Id. II. Anesthesia of Frog Skin. T. Sollmann, Cleveland.—p. 9.
87 *Id. III. Anesthesia of Rabbit's Cornea. T. Sollmann, Cleveland.—p. 17.
88 *Influence of Diet on Toxicity of Sodium Tartrate. W. Salant and A. M. Swanson, Washington, D. C.—p. 27.
89 Protective Action of Diet Against Tartrate Nephritis. W. Salant and A. M. Swanson, Washington, D. C.—p. 43.
90 *Action of Iodid, Bromid and Nitrate Ions on Respiratory Center. D. I. Macht and D. R. Hooker, Baltimore.—p. 63.
91 Comparative Efficiency of Local Anesthetics. Anesthesia of Human Skin. T. Sollmann, Cleveland.—p. 69.
92 Action of an Isomer of Caffein. W. Salant and H. Connet, Washington, D. C.—p. 81.
93 *Chemical Actions of Veratrum. R. J. Collins and P. J. Hanzlik, Cleveland.—p. 89.

85 to 87. **Activity of Local Anesthetics.**—I. The activity of anesthetics on sensory nerve fibers was studied by Sollmann by applying the anesthetics to the sciatic plexus and observing the presence or absence of reflex response to stimulation of the foot. He found that cocain, novocain and tropacocain hydrochlorids are about equally efficient. The efficiency of potassium, alypin, quinin-urea, and especially antipyrin, is smaller, and their efficiency ratio in comparison with cocain is lower than for motor fibers. Alkalization increases the efficiency of the organic anesthetic from two to eight times; the increase being generally about one half as much as for motor fibers. Epinephrin does not increase the efficiency; this result being the same as with the motor fibers. Mixtures of cocain with novocain hydrochlorid or with quinin-urea hydrochlorid give simple summation without potentiation, just as with the motor fibers. Mixtures of the anesthetics with potassium do not show potentiation, differing in this respect from motor fibers. Apparently, therefore, the sensory fibers show some important differences from motor fibers in their response to local anesthetics.

II. Sollmann shows that the application of the anesthetics to the skin of the frog's foot approaches the conditions of surface anesthesia, involving penetration of the drug as well as action on the sensory fibers; but somewhat simplified by doing away with the absorptive removal of the drug. The results differ in some important respects from those of direct immersion (conduction anesthesia). The efficiency ratios for the frog skin are different for prompt and for slow anesthesia. Cocain, alypin and tropacocain make the best showing. Novocain is relatively less efficient than for conduction anesthesia; potassium, quinin-urea and antipyrin make a very poor showing for fast anesthesia; much better for slow anesthesia. Alkali increases the efficiency, even more than for immersion. Epinephrin does not increase the efficiency. Mixtures of cocain with novocain or quinin do not potentiate; nor do mixtures of potassium with cocain or novocain.

III. The application of anesthetics to the cornea is a satisfactory method for comparing their efficiency as surface anesthetics. The order of efficiency is markedly different from immersion or conduction anesthesia. On the cornea, cocain and holocain are the most efficient; then follow beta-eucain, alypin, quinin-urea and tropacocain, and lastly, novocain. Antipyrin and potassium are practically ineffective. The rapidity and the duration of the action vary with the concentration. For just effective concentrations, the duration is shortest with cocain and tropacocain, and longest with quinin-urea. The addition of sodium bicarbonate (0.25 per cent.) increases the efficiency of the anesthetics considerably (two to four times); with the exception of quinin-urea, which is rendered less efficient. Epinephrin does not increase the efficiency. Mixtures of the anesthetics with each other or with potassium, do not lead to potentiation. Sollmann's experimental data are in agreement with the clinical usage.

88. **Influence of Diet on Toxicity.**—An analysis of the results obtained by Salant and Swanson in this investigation shows that the mode of action of some diets and of fasting in modifying the toxicity of tartrate cannot be explained at present. The toxicity of sodium tartrate was most marked on a diet of oats, hay and cabbage. Diets rich in sugar were efficacious in decreasing toxicity, the effect being most pronounced on a diet of young carrots. A marked increase of resistance to tartrates was also observed on a diet of carrot leaves. The authors suggest that the favorable effects of some diets on the toxicity of tartrates might be due to several factors, among them inhibition of bacterial activity in the intestine, [illegible], or unknown constituents that might be present in the diets.

90. **Action of Iodids and Bromids.**—From the experiments described by Hooker and Macht it may be concluded that the iodid, bromid and nitrate ions exert a stimulating effect on the respiratory center. In case of the iodids this agrees well with the stimulating effect of the iodid ion noted by Macht on the isolated heart and blood vessels (3); and in case of the nitrate the results agree also very well with the difference between the action of the nitrates and nitrites noted by the same author on the ureter (4). This effect of the various ions studied and more particularly of the iodids and bromids is of considerable interest from the therapeutic point of view, inasmuch as iodids and bromids are extensively employed in pathologic respiratory conditions.

93. **Clinical Actions of Veratrum.**—The series of cases studied by Collins and Hanzlik includes two normal individuals, and a total of thirty-six observations on twenty-seven different subjects representing such circulatory disorders as hypertonus, paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency, auriculoventricular heart block and several other clinical conditions. Briefly, it may be said that a slowing of the pulse and fall of blood pressure occurs with single therapeutic doses of 15 to 20 minims of the tincture of veratrum album and this occurs independently of such symptoms as nausea, vomiting, etc. (toxicity). Large and repeated doses (25 to 75 minims) produced a slowing of the pulse together with a fall in both systolic and diastolic blood pressure in practically all individuals studied by the authors. The fall of blood pressure and diminution in pulse rate are roughly proportional to the dose. All the desirable circulatory effects produced by tincture of veratrum album may be secured with doses ranging from 45 to 55 minims, administered at the rate of about 10 to 15 minims every one-half to one hour, and without symptoms of toxicity. Repeated large doses administered within short intervals are apt to give rise to symptoms of toxicity. These effects are generally absent with small doses given at longer intervals. Two normal individuals responded to tincture of veratrum album with a fall of systolic and diastolic blood pressure and a slowing of pulse rate in the usual way. Effects in various circulatory disorders were observed about as follows: most marked in hypertonus; less marked, inconstant or no effect at all in heart block (two cases), paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency (one case each). The usual effects of slowing of the pulse and fall of both systolic and diastolic blood pressure were observed in a patient with eclampsia. A number of miscellaneous clinical conditions also responded in the usual way. There were no demonstrable effects on the electrocardiogram. No noteworthy effects with both small and large doses of veratrum album were observed on the respiration. Using compound tincture of gentian (U. S. P.) under the same conditions as tincture of veratrum album in the same and other individuals, no noteworthy effects on the circulation were demonstrable. The effects of veratrum are due, therefore, to the drug per se.

Kentucky Medical Journal, Bowling Green

March, 1918, **16**, No. 3

94 Plea for Better Diagnoses. R. M. Rankin, Covington.—p. 95.
95 Duties and Opportunitities of Medical Reserve Corps Officer. R. Lockhart, Owensboro.—p. 100.
96 History of Surgical Anesthesia and Discoverer. J. W. Barnhill, Owensboro.—p. 103.
97 Worms. T. T. Gibson, Middlesboro.—p. 105.
98 Pellagra. S. J. H. Harris, Philpot.—p. 106.
99 Amebic Dysentery; Results Obtained from Use of Emetin. E. S. Allen, Louisville.—p. 108.
100 Eye as Index in Certain Diseases. C. T. Wolfe, Louisville.—p. 110.
101 Public Health. R. Oleson, Louisville.—p. 116.
102 Antepartum Hemorrhage, Gas Bacillus Infection, Milk Leg in Same Patient. W. Sanders, Louisville.—p. 119.
103 Recurrent Laryngeal Paralysis from Aortic Aneurysm. I. A. Lederman, Louisville.—p. 121.

Maine Medical Association Journal, Portland

February, 1918, **8**, No. 7

104 Late Visceral Syphilis. T. J. Burrage, Portland.—p. 187.
105 Halifax Disaster. T. A. Foster, Portland.—p. 199.

Medical Record, New York

March 2, 1918, **93**, No. 9

106 Problem that Mental Disorders Present to Medical Profession, and Profession's Responsibility. W. B. James, New York.—p. 353.
107 Eyes of Youth. S. E. Jelliffe and L. Brink, New York.—p. 366.
108 Cancer Death Rate in New York City During 1917. L. D. Bulkley, New York.—p. 362.
109 Masked Pellagra. J. F. Yarbrough, Columbia, Ala.—p. 363.
110 Parkinson's Disease and Its Treatment with Parathyroid Gland. W. N. Berkeley, New York.—p. 365.
111 Unstable Qualities of Digitalis Preparations. E. Zueblin, Cincinnati.—p. 366.

New York Medical Journal

March 2, 1918, **108**, No. 9

112 Relation of Tooth Infection to Other Diseases. O. T. Osborne, New Haven, Conn.—p. 385.
113 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 391.
114 Daughters of Moabites and Our Soldiers. W. L. Howard, Westboro, Mass.—p. 394.
115 Surgical Aspects of Gastric Hemorrhage. G. Woolsey, New York. —p. 395.
116 Nature of Transference in Psychanalysis. A. Stern, New York.—p. 398.
117 Case of Subdural Spinal Abscess. Posterior Lateral Laminectomy. Recovery. H. Lowenburg, Philadelphia.—p. 402.
118 Facial Paralysis Following Infection of External Auditory Canal. A. N. Schiller, New York.—p. 403.

New York State Journal of Medicine

February, 1918, **18**, No. 2

119 Syphilis of Eye. W. C. Posey, Philadelphia.—p. 48.
120 Syphilis of Ear. B. A. Richards, Rochester.—p. 52.
121 Intracranial Treatment of Syphilis of Optic Pathways and Optic Atrophies. M. J. Schoenberg, New York.—p. 59.
122 *Treatment of Syphilis of Brain and Cord by Subdural Injections of Salvarsanized Mercurialized Serum. S. T. Nicholson, Clifton Springs.—p. 63.
123 Gallbladder Disease. R. S. Fowler, Brooklyn.—p. 72.

122. Abstracted in The Journal, June 2, 1917, p. 1657.

South Carolina Medical Association Journal, Greenville

February, 1918, **14**, No. 2

124 Postoperative Treatment of Gastro-Intestinal Tract Following Abdominal Section. J. Wallace, Easley.—p. 36.
125 Diagnosis of Urinary Lithiasis. N. B. Edgerton, Columbia.—p. 38.

Texas State Journal of Medicine, Forth Worth

February, 1918, **13**, No. 10

126 Fibrosis Uteri. W. B. Russ and H. T. Wilson, San Antonio.—p. 346.
127 Diagnosis of Nephritis. K. H. Beall, Fort Worth.—p. 349.
128 Kidney of Pregnancy. I. L. Van Zandt, Fort Worth.—p. 351.
129 Significance of Casts in Urine. F. R. Lummis, Houston.—p. 353.
130 Influence of Minute Foreign Bodies within Eye. J. O. McReynolds, Dallas.—p. 355.
131 Student's Expectancy on Entering Medical College. M. H. Boerner, Austin.—p. 356.
132 Pemphigoid Eruptions Following Vaccination. J. B. Shelmire, Dallas.—p. 358.

Vermont Medicine, Rutland

February, 1918, **3**, No. 2

133 Pneumonia and Serum Therapy. E. H. Buttles, Burlington.—p. 27.
134 Goiter. F. H. Lahey, Boston.—p. 30.
135 Vital Thyroid, Parathyroid Activities. C. F. Ball, Rutland.—p. 33.

West Virginia Medical Journal, Huntington

January, 1918, **12**, No. 7

136 Medical Economics. I. J. Haynes, Richmond.—p. 241.
137 Nitrous Oxid and Oxygen in Obstetrics. C. S. Fleming, Fairmont. —p. 246.
138 Ptomain Poisoning. A. Lederer, Morgantown.—p. 248.
139 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood.—p. 255.

February, No. 8

140 Variations in Lateral Processes of Fifth Lumbar Vertebra in Etiology of Backache. H. A. Wilson, Philadelphia.—p. 281.
141 Diagnosis and Treatment of Urinary Lithiasis. J. E. Burns, Baltimore.—p. 286.
142 Roentgen Ray Examination of Duodenum, Gallbladder and Pancreas. W. A. Quimby.—p. 291.
143 Cellular Determination of Sex. P. J. McElrath, Bramwell.—p. 297. To be continued.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

January, 1918, **11**, No. 3

1 Chilomastix Mesnili. A. J. Chalmers and W. Pekkola.—p. 213.
2 Nocardia Cylindracea; South Africa Otomycosis. W. E. De Korté. p. 265.
3 Tsetse Flies and Fly Belts. C. Christy.—p. 270.
4 *Quinin Treatment of Tertian Malaria. J. W. W. Stephens and Others.—p. 283.

4. **Malaria Treated by Quinin.**—The effect of 15 grains of quinin sulphate given by the mouth on two consecutive days was studied by the authors; further, in order to ascertain the effect of the magnitude of the dose, a series of observations was made with the following doses on two consecutive days: 5, 10, 30, 60 and 90 grains. So far as possible, such cases as did not relapse were observed for a period of at least sixty days after treatment in order to determine the curative value of the respective treatments. As a general rule, it may be stated that the administration of quinin sulphate on two consecutive days in doses as low as 10 grains suffices to cut short an attack of simple tertian malaria and to cause the temporary disappearance of parasites, trophozoites and gametes from the cutaneous blood. This also holds good for a series of cases treated with 5 grains of bihydrochlorid, but in four of the twelve cases in the 5 grains of sulphate series the parasites did not disappear. Regarded from the curative point of view, that is, the prevention of relapse, no success was obtained when the dosage was less than 45 grains. When this dosage was reached a curative value became appreciable: thus in the 45 grains series 25 per cent. of cases did not relapse, in 60 grains series 42 per cent., and in the 90 grains series 62 per cent. The observation period in the cases which did not relapse was at least sixty days.

British Medical Journal, London

Feb. 9, 1918, **1**. No. 2980

5 Possible Pitfalls in Life Assurance Examination. F. P. Weber.—p. 167.
6 Two Years' Experience of Septic Wounds in Duncombe Park V. A. D. Hospital. A. Blair.—p. 169.
7 Technic of Carrel-Dakin Treatment. G. E. McCartney and F. H. H. Mewburn.—p. 170.
8 *Treatment of Wounds by Flavine. E. M. Pilcher and A. J. Hull. —p. 172.
9 Wound Flora in Relation to Secondary Suture. A. R. Munroe, A. G. Fleming and R. M. Janes.—p. 173.
10 Value of Mixture of Cyllin, Iodoform and Olive Oil in Intrathoracic Sepsis. W. Gordon and M. E. Gates.—p. 173.
11 *Mutton Bird (Sooty Petrel) Oil. J. S. Purdy.—p. 174.

8. **Treatment of Wounds by Flavine.**—Two main theses are proposed by Pilcher and Hull: First, a comparison is made between flavine and Carrel-Dakin treatment, in which the former, though not inferior at all points, is yet made, on the criteria chosen, to take a second place; and secondly, by histologic examination flavine is shown to delay the process of repair, to allow organisms to remain on the wound surface, and to prevent epithelial ingrowth. The authors hold that, putting aside any question of the permanence and effectiveness of the antiseptic solution used in the Carrel-Dakin treatment (though this has been called in question), the method itself is not of universal application, entirely on account of its inherent difficulties of technic. If this is allowed, any simpler method which can be effectively used by less skilled workers, and which approaches in efficiency, as judged by the suture standard, the Carrel-Dakin method, is worthy in spite of minor drawbacks, of an extended trial in the army.

Results which can only be obtained by an expert with much time and comparatively few cases are contrasted with a method which is practically fool proof; any dresser can fill a wound cavity with gauze dipped in 1 in 1,000 solution of flavine. In the many hundreds of cases (rather more than 5,000) so treated in the hospitals under the command of one of the authors, they have found that for ease of preparation and application, rapidity when dealing with large numbers of cases, complete absence of surgical fidget, early cleaning of the wounds, and abatement of constitutional reaction to absorption, flavine (and its congener brilliant green) is an admirable application under all circumstances, but especially where surgeons are few, time is short, and wounds are many. But, even when contrasted with the Carrel-Dakin series of fifty flavine cases does not come badly out of the test. The temperature falls early; more than one third reach the difficult suture ideal, and though there is delay in the process of healing, there is some diminution in the local and general reaction to infection. The lethal concentration of flavine against cocci in the presence of serum being 1 in 200,000 (Browning), the authors find the addition of hypertonic saline solution a valuable adjunct to the action of the antiseptic by producing free exudation.

11 **Mutton Bird Oil.**—According to Purdy the oil extracted from the sooty petrel is not only an excellent substitute for, but, in the opinion of some, more effective in the treatment of bronchitic conditions and phthisis than cod liver oil.

Edinburgh Medical Journal

February, 1918, **20**, No. 2

12 John Hunter's Free Martin. D. B. Hart.—p. 84.
13 Cerebrospinal Fever. P. W. Maclagan.—p. 93.
14 Three Cases of Axillary Vein Obstruction. R. J. Willan.—p. 105.
15 Scurvy in Infants. A. D. Fordyce.—p. 110.

Journal of Tropical Medicine and Hygiene, London

Feb. 1, 1918, **21**, No. 3

16 *Case of Larbish or Oerbiss Observed in Northern Nigeria. J. W. S. Macfie.—p. 25.
17 Symptomatology and Treatment of Human Trypanosomiasis in Lusanga Area, District Dulwango, Belgian Congo. W. E. Masters.—p. 25.

16 **Case of Larbish or Oerbiss.**—Larbish is a form of "creeping eruption" occurring in French Senegal first described by Berenger-Féraud in 1875. MacFie reports a case. The disease is due to the presence of dipterous larvae under the skin. No parasites have hitherto been found, and the cause of the condition is at present unknown.

Lancet, London

Feb. 9, 1918, **1**, No. 4928

18 *Acidemia in Gas Gangrene, and on Conditions Which Favor Growth of Its Infective Agent in Blood Fluids. A. E. Wright and A. Fleming.—p. 205.
19 Introduction of Modern Practice of Bone Grafting. A. Keith. p. 210.
20 *Painful Neuritis Resulting from Wounds of War. J. A. Sicard. —p. 213.
21 Intussusception; Report of Cases. H. W. G. Mackenzie and W. H. Battle.—p. 215.
22 Vibrating Sensation in Differential Diagnosis of Affections of Spinal Cord and Peripheral Nerves. R. T. Williamson.—p. 216.
23 Method of Estimating Vibratory Sensation. J. L. M. Symns. —p. 217.

18 **Acidemia in Gas Gangrene.**—Observations made by Wright and Fleming confirm and bring into clearer light the fact that the growth of the microbes of gangrene is favored by every reduction of blood alkalinity, and they suggest that wherever, as in the dead body and the muscles, we come on conditions which specially favor the growth of the gas gangrene bacillus, there the factor of acidosis is likely to be the operative factor. And it has been further demonstrated that the microbes of gangrene can by elaborating acid make for themselves favorable conditions at the site of infection, and in the blood generally. The treatment of the acidemia of gas gangrene toxemia follows directly from its pathology. Wright and Fleming have employed, as is done in grave diabetic acidosis, intravenous injections of alkali, following these up, in cases in which a relapse had to be guarded against, by lactate of soda administered by the mouth in doses of 8 gm. four-hourly until the urine becomes alkaline. For the intravenous injections they have employed a 5 per cent. solution of sodium bicarbonate, preferring this for two reasons to a solution of carbonate of soda: First, for convenience of dosage, the bicarbonate being, as distinguished from the water holding carbonate of soda, a nonefflorescent salt; and, second, to guard against local injury to tissues in case of any fluid escaping from the needle during the injection. The quantity of alkaline solution chosen, that is, 500 c.cm. has sufficed to restore, or just more than restore, to the blood its

90. **Action of Iodids and Bromids.**—From the experiments described by Hooker and Macht it may be concluded that the iodid, bromid and nitrate ions exert a stimulating effect on the respiratory center. In case of the iodids this agrees well with the stimulating effect of the iodid ion noted by Macht on the isolated heart and blood vessels (3); and in case of the nitrate the results agree also very well with the difference between the action of the nitrates and nitrites noted by the same author on the ureter (4). This effect of the various ions studied and more particularly of the iodids and bromids is of considerable interest from the therapeutic point of view, inasmuch as iodids and bromids are extensively employed in pathologic respiratory conditions.

93. **Clinical Actions of Veratrum.**—The series of cases studied by Collins and Hanzlik includes two normal individuals, and a total of thirty-six observations on twenty-seven different subjects representing such circulatory disorders as hypertonus, paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency, auriculoventricular heart block and several other clinical conditions. Briefly, it may be said that a slowing of the pulse and fall of blood pressure occurs with single therapeutic doses of 15 to 20 minims of the tincture of veratrum album and this occurs independently of such symptoms as nausea, vomiting, etc. (toxicity). Large and repeated doses (25 to 75 minims) produced a slowing of the pulse together with a fall in both systolic and diastolic blood pressure in practically all individuals studied by the authors. The fall of blood pressure and diminution in pulse rate are roughly proportional to the dose. All the desirable circulatory effects produced by tincture of veratrum album may be secured with doses ranging from 45 to 55 minims, administered at the rate of about 10 to 15 minims every one-half to one hour, and without symptoms of toxicity. Repeated large doses administered within short intervals are apt to give rise to symptoms of toxicity. These effects are generally absent with small doses given at longer intervals. Two normal individuals responded to tincture of veratrum album with a fall of systolic and diastolic blood pressure and a slowing of pulse rate in the usual way. Effects in various circulatory disorders were observed about as follows: most marked in hypertonus; less marked, inconstant or no effect at all in heart block (two cases), paroxysmal tachycardia, myocarditis with renal vascular disease, aortic insufficiency (one case each). The usual effects of slowing of the pulse and fall of both systolic and diastolic blood pressure were observed in a patient with eclampsia. A number of miscellaneous clinical conditions also responded in the usual way. There were no demonstrable effects on the electrocardiogram. No noteworthy effects with both small and large doses of veratrum album were observed on the respiration. Using compound tincture of gentian (U. S. P.) under the same conditions as tincture of veratrum album in the same and other individuals, no noteworthy effects on the circulation were demonstrable. The effects of veratrum are due, therefore, to the drug per se.

Kentucky Medical Journal, Bowling Green

March, 1918, **16**, No. 3

94 Plea for Better Diagnoses. R. M. Rankin, Covington.—p. 95.
95 Duties and Opportunitities of Medical Reserve Corps Officer. R. Lockhart, Owensboro.—p. 10
96 History of Surgical A Owensboro.—p.
97 Worms. T. T
98 Pellagra.
99 Amebic
100 E

ses the more intense nervous phen high leukocyte count and a complete and reaction on the part of the meninges. The globu-tion and the lymphocytosis seem to be the result of augmented permeability of the meninges on the one hand, and of the leukocytosis in the blood on the other hand. In some cases the leukocyte count was very high, up to 60,000, but there was no meningeal reaction and the patient did not show any serious nervous disturbances. Evidently the meninges were not much permeable. Two other patients presented from the very first grave nervous disturbances; the meninges were extremely permeable but there was pronounced leukopeny and no signs of a meningeal reaction.

27. **Psychotherapy for Contracture of Hand or Foot.**—This profusely illustrated article reviews the experiences with 141

Medical Record, New York

March 2, 1918, **93**, No. 9

106 Problem that Mental Disorders Present to Medical Profession, an Profession's Responsibility. W. B. James, New York.—p. 353
107 Eyes of Youth. S. E. Jelliffe and L. Brink, New York.—p. 366.
108 Cancer Death Rate in New York City During 1917. L. D. Bulkley New York.—p. 362.
109 Masked Pellagra. J. F. Yarbrough, Columbia, Ala.—p. 363.
110 Parkinson's Disease and Its Treatment with Parathyroid Gland W. N. Berkeley, New York.—p. 365.
111 Unstable Qualities of Digitalis Preparations. E. Zueblin, Cincinnati.—p. 366.

New York Medical Journal

March 2, 1918, **108**, No. 9

112 Relation of Tooth Infection to Other Diseases. O. T. Osborne New Haven, Conn.—p. 385.
113 Hyperthyroidism and Mental Disorders. W. K. Walker, Pittsburgh.—p. 391.
114 Daughters of Moabites and Our Soldiers. W. L. Howard, Westboro, Mass.—p. 394.
115 Surgical Aspects of Gastric Hemorrhage. G. Woolsey, New York—p. 395.
116 Nature of Transference in Psychanalysis. A. Stern, New York.—p. 398.
117 Case of Subdural Spinal Abscess. Posterior Lateral Laminectomy Recovery. H. Lowenburg, Philadelphia.—p. 402.
118 Facial Paralysis Following Infection of External Auditory Canal A. N. Schiller, New York.—p. 403.

New York State Journal of Medicine

February, 1918, **18**, No. 2

119 Syphilis of Eye. W. C. Posey, Philadelphia.—p. 48.
120 Syphilis of Ear. B. A. Richards, Rochester.—p. 52.
121 Intracranial Treatment of Syphilis of Optic Pathways and Optic Atrophies. M. J. Schoenberg, New York.—p. 59.
122 *Treatment of Syphilis of Brain and Cord by Subdural Injections of Salvarsanized Mercurialized Serum. S. T. Nicholson, Clifton Springs.—p. 63.
123 Gallbladder Disease. R. S. Fowler, Brooklyn.—p. 72.

122. Abstracted in The Journal, June 2, 1917, p. 1657.

South Carolina Medical Association Journal, Greenville

February, 1918, **14**, No. 2

124 Postoperative Treatment of Gastro-Intestinal Tract Following Abdominal Section. J. Wallace, Easley.—p. 36.
125 Diagnosis of Urinary Lithiasis. N. B. Edgerton, Columbia.—p. 38.

Texas State Journal of Medicine, Forth Worth

February, 1918, **13**, No. 10

126 Fibrosis Uteri. W. B. Russ and H. T. Wilson, San Antonio.—p. 346.
127 Diagnosis of Nephritis. K. H. Beall, Fort Worth.—p. 349.
128 Kidney of Pregnancy. I. L. Van Zandt, Fort Worth.—p. 351.
129 Significance of Casts in Urine. F. R. Lummis, Houston.—p. 353.
130 Influence of Minute Foreign Bodies within Eye. J. O. McReynolds, Dallas.—p. 355.
131 Student's Expectancy on Entering Medical College. M. H. Boerner, Austin.—p. 356.
132 Pemphigoid Eruptions Following Vaccination. J. B. Shelmire, Dallas.—p. 358.

Vermont Medicine, Rutland

February, 1918, **3**, No. 2

133 Pneumonia and Serum Therapy. E. H. Buttles, Burlington.—p. 27.
134 Goiter. F. H. Lahey, Boston.—p. 30.
135 Vital Thyroid, Parathyroid Activities. C. F. Ball, Rutland.—p. 33.

[illegible] Medical Journal, Huntington

No. 7

of some of these sig give the clue to proper therapeutic sures, as they describe in detail. Among the special c acteristics cited is the peculiar pupil reaction to ligh infants up to a month old; in infants up to six months flexion of the foot on the leg and the fan spreading of toes when the back of the foot or lower end of the tibia brushed three, four or five times with a blunt instrum or the end of a match. This reflex was found constant un the age of six months in the forty infants tested, but grac ally subsided during the following six months. It persist unmodified only in children that developed Little's disea After the fifteenth month the persistence of this reflex m be regarded as pathologic.

sion. Radioscopy may show vigorous peristalsis and the outline of the duodenum changes its shape and size, but the contents are not passed along. Unless this chronic partial obstruction of the duodenum in visceroptosis is thought of and examined for, treatment is liable to be applied on the wrong basis. By fattening the patient a little, the tendency to ptosis is reduced and the occlusion may subside. With the more pronounced form, the same mechanical measures as with the acute occlusion may be necessary, reclining prone or taking the knee-chest position. Romme quotes Vanderhoof's recent report of six cases in The Journal. He made his patients assume the knee-chest position for fifteen minutes every two hours, and lie prone the remainder of the time. If conditions are so grave that operative measures have to be considered, most surgeons prefer duodenojejunostomy or resection of the right half of the colon.

53. **Dosage of Diphtheria Antitoxin.**—Comby deplores the timidity of certain physicians who still hold back from high dosage and give diphtheria antitoxin in inadequate amounts. He would like to have the antitoxin marketed in large vials, up to 20, 40 or 60 c.c. The small vials might be labeled "preventive dose" and the large "curative dose."

Progrès Médical, Paris

Jan. 5, 1918, 33, No. 1

54 *Nontoxic Antiseptics. L. Mencière.—p. 1.
55 Autochthonous Malaria. Two Cases. J. Tapie.—p. 3.
56 The Cure of the King's Stiff Neck. A. Satre.—p. 5.

Jan. 12, 1918, 33, No. 2

57 Nature of Somnambulism. Bernheim.—p. 11.
58 *Placental Origin of Eclampsia. L. Bory.—p. 12.
59 Thyroidism and Loss of Flesh in Women. P. Blum.—p. 15.

Jan. 26, 1918, 33, No. 4

60 *Immobilization of Fractured Femur. H. P. Achard.—p. 27.
61 Immobilization for Fractured Fingers. L. Senlecq.—p. 33.
62 *Fracture of Humerus in Throwing Grenade. L. Senlecq.—p. 34.

54. **Nontoxic Antiseptics.**—Mencière's nearly three years of experiments with scraps of human tissue and specimens of blood treated with guaiacol and benzoic acid, his intravenous injection of these drugs in animals, and his study of their effects on wounds, etc., have convinced him that this combination is strongly bactericidal, while it does not destroy the protoplasm of the cells or display any hemolytic action. Hence he declares that these stable drugs can be used in treatment of wounds as nontoxic and efficient antiseptics. In his experiments on rabbits he used 10 c.c. of a mixture of 2 gm. benzoic acid, 10 gm. guaiacol and 8 gm. alcohol to 1,000 gm. water. One rabbit was given five daily injections to a total of 65 c.c. in six days. No untoward by-effects were observed. The freezing point of this mixture is —0.45, the same as the freezing point of physiologic saline solution.

58. **The Placental Origin of Eclampsia.**—Bory's theory is that eclampsia is the result of insufficiency of the placenta just as uremia is the result of insufficiency of the kidneys, and jaundice of insufficiency of the biliary apparatus. The eclampsia is the terminal syndrome of placental insufficiency which permits the toxins from the fetus to pass into the maternal circulation unmodified. During the later months of pregnancy, the waste products of the fetus increase progressively in amount, and if they pass unmodified through the abnormal placenta, their toxic action injures the maternal organs and sets up a vicious circle with the result that symptoms develop suggesting both insufficiency of the kidneys and of the liver, and we have the clinical picture of eclampsia. The frequent protracted contractions of the uterus so common in primiparas may be the cause of the insufficiency of the placenta or may exaggerate it.

60. **Fracture of the Thigh.**—Achard gives eleven illustrations of various devices for immobilization and extension of the fractured femur. The devices of the kind in use before the war were designed for closed fractures, so that they had to be fundamentally reconstructed for the wounded. Whatever the device used, the traction must be powerful enough to overcome the muscular contraction. Weights of from 10 to 20 kg. at least must be used.

62. **Fracture of Humerus from Throwing Grenade.**—Since Phelip reported in 1916 a case of this kind, five similar ones have been encountered. The fracture occurs in healthy men as they throw the grenade by hand. The bone breaks obliquely into three overlapping pieces, as Senlecq shows by a radiogram. Vautrin's patient was an American soldier and the fracture occurred while he was playing ball. Consolidation was not complete until the end of the fourth month. In the other cases one month generally sufficed.

Revue de Chirurgie, Paris

July-August, 1917, 36, No. 7-8

63 *Arteriovenous Aneurysms in War Surgery. E. Forgue.—p. 1.
64 *Skull Wounds. A. Schwartz and P. Mocquot.—p. 50.
65 *Extensive War Wounds. A. Chalier and R. Glénard.—p. 124.
66 *Repair of the Skull. C. Villandre.—p. 184.

63. **Arteriovenous Aneurysms in War.**—Forgue remarks that this complication of a war wound was never known before the modern small jacketed bullet was introduced, but it has become common since the Franco-Prussian War of 1870. He discusses how they should be managed, emphasizing in particular what not to do. Ligation of the central end of the artery is directly injurious, for reasons which he explains. The first step should be quadruple ligation, with excision of the aneurysmal segment of both artery and vein, realizing throughout the importance of keeping the arterial and the venous circulation separate. The quadruple ligature must be on a stretch of the vessels free from important venous collaterals. Other special points to bear in mind are described. Sometimes it is possible to release the vessels and close the opening in the vein or artery or both with a lengthwise suture, but time and experience have demonstrated that the most radical is the safest method.

64. **Skull Wounds.**—This article summarizes the lessons learned from 53 cases of skull wounds without injury of the dura, 136 in which the dura had been opened, and 64 in which the wound was merely superficial. Only 4 died in the first group but 78 died of the 136 men with wounds involving the dura mater. The details of 103 cases are given, classified according to the various types of injury and the indications. Local regional anesthesia is always preferable and the projectile should always be removed if it is of some size and in the hemisphere corresponding to the entering wound. It should be sought along its track under roentgen control. The magnet is better than forceps for removing a metal foreign body.

65. **Extensive War Wounds.**—This instalment concludes Chalier and Glénard's study of 1,500 cases of *grandes blessures* treated at an advanced surgical station. Abdominal wounds are discussed here and the principle of a prompt and ample laparotomy is insisted on. Expectancy, they declare, is a snare and a delusion. It is permissible only when from twenty-four to forty-eight hours have elapsed since the injury. In this event no food should be allowed, and the man should not be sent back any distance until after six weeks.

66. **Repair of the Skull.**—Villandre is convinced that headache and dizziness in some cases are due merely to the upset in the balance in the brain when there is a gap in the solid box containing it. A small trephine hole does not require repair, and he does not repair the breach unless symptoms suggest that intervention is called for. As a rule, all foreign bodies should be extracted before repairing the breach, and also all bone sequesters, but exceptionally this might be omitted in the absolute absence of symptoms. Excessively high pressure and albumin content of the cerebrospinal fluid should warn to postpone the intervention, but convulsions do not contraindicate it. For various reasons enumerated, his choice for closing the gap is with several shavings of costal cartilage or bone-periosteum scraps from the tibia, all from the patient himself. Only when he refuses those autografts, Villandre uses a plate of bone from a human or sheep skull or other source. General anesthesia is necessary in the autografting cases; the various steps of the intervention on chest or tibia and skull are described in detail with illustrations. He protects the cartilage grafts with catgut passed

from side to side to form a network, suturing the scalp hermetically over this with horsehair. This not only protects but nourishes the cartilage engrafted scraps. The man must lie horizontal afterward in a warm bed and room, without a pillow, for eight days at least. In his 130 cases there were no deaths and the intervention proved a success in all but eight cases. The bone-periosteum grafts were all successful; the cartilage grafts in all but 4 per cent.; the bone plate cases in all but 18 per cent. while the pulverized bone paste was thrown off later in 50 per cent., that is, in two of the four cases. The men benefited materially and morally by the closure of the breach in the skull, the symptoms subsided and the men were able to lie down to sleep, in short all the reactions improved except the reaction to changes in temperature. But still, Villandre advocates temporary or definite discharge from the service of men with wounds of the skull and brain as the later evolution may bring surprises, notwithstanding the benefit from the plastic operation on the skull. It should not modify in any way the decision as to the man's fitness for further service or the pension granted.

Annali d'Igiene, Rome

December, 1917, **27**, No. 12

67 Commercial Sterilization of Milk. C. Gorini.—p. 729.

Policlinico, Rome

January, 1918, **25**, Surgical Section No. 1

68 Inflammatory Fibrous Tumor of the Neck. P. Gilberti.—p. 1.
69 *Pseudohermaphrodite. C. Lollini.—p. 7; G. Filardi.—p. 19.
70 Experimental Lesions of Pituitary Body. A. Chiasserini.—p. 26.

69. **Pseudohermaphrodites.**—In both the cases described the aspect of the body and the external genitals were of a pronounced feminine type, with full breasts. Each had testicles simulating hernia. The interstitial gland was well developed, but there were no other internal sex organs. The usual assumption that the ovaries preside over the development of the breast is disproved by these cases, as there were no ovaries, tubes or uterus in either.

Prensa Medica Argentina, Buenos Aires

September 10, 1917, **4**, No. 10

71 Normal Beef Serum in Treatment of Anthrax.—Kraus and Others.—p. 119. Continuation.
72 Complications of Criminal Abortion. M. L. Perez.—p. 121.

Dec. 20, 1917, **4**, No. 20

73 Ignored Syphilis. N. V. Greco.—p. 263.
74 *Antityphoid Vaccination in Argentina. S. Mazza.—p. 264.
75 The Trichocephalus in a Camel. Parodi and Widakowich.—p. 266.
76 Testing Toxic Doses on White Mice. (Laucha blanca.) O. B. Montes.—p. 268.
77 *Access to the Iliolumbar Region. R. Finochietto.—p. 271.
78 Tuberculosis in Argentina. D. Cabred.—p. 272.

74. **Antityphoid Vaccination in Argentine Army.**—Mazza concludes from his experience that the number of indigenous strains used in making the vaccine should be increased, always having paratyphoid B bacilli in a proportion of one third. He advises two injections as ample but increasing the number of germs to 2 billions at the first and 6 billions at the second injection. He also advises repeating the injections annually, at least for the troops.

77. **Access to the Iliolumbar Region.**—Finochietto expatiates on the ample access afforded when the patient is placed with his trunk lying on one side on the table, the legs resting on the floor at an angle of 130 degrees. The exaggerated scoliosis thus induced opens up widely the space in question and the spine is readily exposed. Five illustrations accompany the article.

Revista de Medicina y Cirugia Practicas, Madrid

Nov. 21, 1917, **117**, No. 1483

79 Delivery with Contracted Pelvis. D. J. J. de la Muela.—p. 241.
80 Tremor in Masturbating Degenerates. J. S. De Figueroa.—p. 250.

Dec. 7, 1917, **117**, No. 1485

81 Blunders in Diagnosis. D. J. Blanc.—p. 321.
82 Lumbar Puncture with Skull Trauma. D. J. Blanc.—p. 327.

Revista Medica del Uruguay, Montevideo

December, 1917, **20**, No. 12

83 *Paralysis of Left Recurrent Nerve with Mitral Disease. A. Carrau.—p. 727; P. E. Nuñez.—p. 735.
84 *Pedunculated Myoma on Gravid Uterus. H. F. Platero.—p. 739.
85 *Premature Senility after Puerperal Fever. A. Turenne.—p. 742.
86 *Annular Dystocia and Pituitary Extract. C. P. Colistro and H. F. Platero.—p. 752.
87 *Meningitis at Montevideo. L. Morquio and others.—p. 769.

83. **Paralysis of Recurrent Nerve with Mitral Stenosis.**—Carrau's patient was a girl of 16 who had presented symptoms of mitral stenosis since an attack of acute rheumatism four years before. Aphonia developed suddenly and has persisted for six months; it is relieved when the girl reclines and becomes more complete as she stands. The aphonia grew much less marked also under the influence of digitalis. Carrau believes that this is the youngest age reported to date for recurrent paralysis from this cause. The symptoms from the mitral stenosis had become much attenuated before the aphonia developed. The dilated auricle with its thick walls evidently presses on the pulmonary artery and forces it out of shape. This in turn presses on the left recurrent nerve.

Nuñez was called in consultation on the case, the first of the kind he had ever seen, and within two months he encountered a second case. The patient was a woman of 25 with a history of dyspnea on exertion and aphonia for years. Evidently a congenital and familial primary mitral stenosis was responsible for the aphonia in this case.

84. **Uterine Myoma Simulating Ovarian Cyst.**—The diagnosis of torsion of an ovarian cyst in a woman five months pregnant seemed beyond question, especially as the patient was only 20 and there had been no previous symptoms and no menstrual disturbances. The tumor was a fibromyoma on a twisted pedicle, 3 cm. long, implanted on the left body of the uterus.

85. **Premature Senility.**—Turenne has encountered four cases in which puerperal fever in young women seemed to have damaged the organs to such an extent that they shriveled away afterward, bringing on a premature general senility. In the first case a robust woman of 28 within two years lost 33 pounds, her teeth had dropped out without caries or pains, she had lost most of her hair, and the skin was dry, yellow and wrinkled. The general health was good except for arteriosclerosis. This increased and the woman succumbed to it at 38. Another primipara of 22 had had suppuration in the uterus for two months and menstruation had not returned in three years. Four teeth had dropped out and much hair had been lost but the general health was good and she had gained in weight but the aspect was that of a woman of 50. The two other cases resembled these, the young women looking old and wrinkled, with scanty hair, but they had not lost any teeth. The findings on palpation of the uterus were in all like those after subtotal hysterectomy. The persisting amenorrhea had never been accompanied by the deficit symptoms of the menopause, and there was nothing to call attention in particular to the suprarenals, thyroid or parathyroids. In all his experience with atrophy of the uterus from other causes, he never witnessed symptoms like the above. For the premature senility, there must have been various factors at work, possibly damage of glands with an internal secretion. He reviews what is known in regard to the functioning of these various glands, and urges a watch for deficit symptoms in order to apply the proper organotherapy in time, heeding the reactions induced. Another practical conclusion from his experience is that women who have passed through severe puerpe fever should be long supervised to ensure hygienic conditi and promote absorption of exudates, etc., with the viscera their normal position.

86. **Annular Dystocia and Pituitary Extract.**—Colistro and Platero report a case of difficult delivery in a healthy woman of 35 with normal pelvis, the fetus rather smaller than the average. As labor was unduly protracted, after failure or attempts at forceps extraction, pituitary extract was given.

The fetal heart sounds then ceased to be heard. The fetal head was free in the vagina but the annular contracture above was almost unconquerable although morphin was given freely afterward. At necropsy a hole was found just above the ring, opening into the pouch of Douglas, and responsible for the fatal peritonitis. This perforation was not present when the fetus was delivered or it would have been discovered during the careful examination that was made. The prolonged pressure of the fetal parts had evidently compromised the vitality of the tissues at this point. The pituitary extract had manifestly increased the tendency to contracture. Cases of annular dystocia in which pituitary extract has been given are much more difficult to bring to a successful conclusion than cases without it. Turenne has recently warned that dystocia is being encountered now with unprecedented frequency, and he ascribes this to the increasing use and abuse of pituitary extract.

87. **Meningitis at Montevideo.**—The Pediatric Society at a recent meeting listened to Zerbini's report of meningitis in the course of mumps in a boy of 13. The cerebrospinal fluid showed 99 per cent. lymphocytes at first but they gradually declined. Morquio remarked that mumps meningitis is generally mild and soon thrown off, but while it lasts it may aid in the differential diagnosis of the mumps in the absence of pronounced parotitis. A slight meningeal reaction is not meningitis, but merely a reaction to the elimination of toxins. He has known, however, of fatal cases of mumps meningitis and others which left durable nervous affections. Pelfort reported two cases of meningitis in infants about a year old, fatal in both, notwithstanding temporary improvement under antimeningococcus serum. Meningococci were numerous in the spinal fluid. Bonaba reported a fatal case of a diplococcus meningitis in a girl of 12. Improvement was marked for a time under serotherapy, but then the convulsions and hemiplegia returned. A silver salt was injected intraspinally and a fixation abscess induced but the child died the twenty-second day. Morquio commented on the greater virulence of the germs in the last year or so. In all the cases improvement follows the serotherapy, but a few days later the cerebrospinal fluid grows turbid again, the meningococci reappear and the symptoms return more severe and more tenacious. Zerbino stated that before 1916 his mortality had been only 11 per cent. but recently most of the cases terminated fatally. Solari mentioned a fatal case in a young child in which the meningitis was secondary to pneumonia, and pneumococci swarmed in the cerebrospinal fluid.

Semana Medica, Buenos Aires

Nov. 15, 1917, 24, No. 46

88 *Uremic Meningitis. J. R. Goyena and V. Peradotto.—p. 545.
89 *Prophylaxis of Leprosy. A. G. Fages.—p. 552.
90 *Sand Test of Typhoid Carriers. R. A. Borzone and J. M. Carbone.—p. 569.

88. **Uremic Meningitis.**—Goyena and Peradotto report with minute laboratory detail a case of what seemed to be uremic meningitis consecutive to nephritis with retention of urea alone. The acute meningeal phase subsided under restriction to a milk diet, then milk and vegetable, and a diuretic (pulverized squill, 0.2 gm. daily). The urine findings were constantly negative except for a little albumin during the menstrual periods, but the woman, an otherwise healthy sextipara still has 1 per thousand urea in the blood. Their experience does not confirm Widal's statement that with urea over 1 per thousand the patients rarely survive for more than a year. They had one case with 3.9 per thousand, and the woman kept in good condition for more than a year and the proportion became much reduced before she was [illegible] to sight. In the present case the proportion keeps [illegible] 1 per thousand and the condition is satisfactory, but as she has had one severe meningeal involvement from retention, any errors in diet are liable to bring it back again with fatal outcome.

89. **Leprosy.**—Fages says that prophylaxis of leprosy requires careful disinfection of mouth and nose and of the cutaneous lesions, to ward off contagion of others. These hygienic and prophylactic measures are never applied completely, according to his experience to date, so that each leper is a possible source of contagion. He knows of eighty cases of leprosy in his district in Argentina. They are scattered in seven different regions; no attempt is made to isolate them except in one town where ten are gathered under one roof. It is now planned to construct a large leprosarium with accommodations for 500 in the Chaco district. He protests that an inland leper colony of this kind is just adding fuel to the fire. The leper colony should be on some island apart from the centers of population. Each member of the colony should be given land and everything for successful farming. It should be a free farming community except that the inmates cannot leave the island.

90. **Sand Test for Typhoid Bacilli Carriers.**—Borzone and Carbone report the successful use of Carbonell's modification of the sand tube for differentiation of the more motile typhoid bacilli. The sand test was described in The Journal, April 15, 1916, p. 1281. Carbonell's modification consists in using an outer tube, 18 cm. long by 3.5 cm. in diameter, and an inner tube 14 cm. long by 2 cm. in diameter. The lower end of the inner tube tapers and curves up, and it is filled with sand to a height of 4 cm. The outer tube is partly filled with bouillon containing 1 per cent. glucose and a few drops of neutral red. The sand soaks up the bouillon, and the diluted specimen of feces is placed only in the inner tube. In from sixteen to eighteen hours the bouillon in the outer tube will contain typhoid bacilli in case of positive findings. In thirty suspected carriers, by this means the typhoid bacillus was detected in twenty-three and the paratyphoid B in three. Numerous tests with colon, paracolon, anthrax and dysentery bacilli and staphylococci confirmed the reliability of the differential findings.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 17, 1917, 2, No. 20

91 *The Divining Rod in Medicine. G. van Rijnberk.—p. 1799.
92 *Atrophy of Muscles of Central Origin. J. K. A. W. Salomonson.—p. 1811.
93 *Iron Scrap in Eyeball. J. Van der Hoeve.—p. 1819.
94 Pneumothorax in Pneumonia. W. A. Weisfelt.—p. 1825.

Dec. 15, 1917, 2, No. 24

95 *Meningitis. J. P. Bijl.—p. 2110.
96 Optochin in Pneumococcus Sepsis. C. J. C. van Hoogenhuyze and A. de Kleyn.—p. 2116.
97 Auscultation of Diastolic Pressure. J. Lankhout.—p. 2120.
98 Physical Conditions of Amsterdam Schoolchildren. J. Lubsen.—p. 2128.
99 *Liver Syphilis. W. Hoogslag.—p. 2131.
100 Paratyphoid B. A. Athmer.—p. 2134.

91. **The Divining-Rod in Medicine.**—Rijnberk discusses rather sarcastically some recent works on this subject by Van Gulik in the Netherlands and by Professor M. Benedikt of Vienna, remarking in conclusion that Professor Benedikt's age, 82, must be taken into consideration.

92. **Cerebral Atrophy of Muscles.**—In the case reported, a diabetic woman of 66 developed paralysis on one side, evidently from a focus of softening in the brain. This was soon followed by atrophy of the muscles on the paralyzed side with the reaction of degeneration, the whole of unprecedented intensity. Salomonson theorizes to explain this as the result of the inadequate nourishment of the nerve cells owing to the reduction in functioning on account of the paralysis. The diabetes is probably responsible for the fact that the nourishment became so rapidly insufficient, entailing the early degeneration.

93. **Iron Scraps in the Eyeball.**—The two cases reported emphasize the importance of removing minute scraps of iron from the eye, although they may seem to be perfectly tolerated at first. In one case, after transient ulceration of the cornea, vision seemed to be normal for seven years, but then severe pain developed in that eye and a brown tumor was found on the iris, about 4 mm. in diameter. It was assumed to be a melanosarcoma and its excision was planned. Just before the operation, however, it was noticed that the supposed tumor had become detached from the iris and

changed its position. It was removed and proved to be a scrap of steel in the midst of an amorphous mass. Only traces of the lens were found, but vision was left 3/4. Vision was still more reduced in the second case; in both cases the direct siderosis was unusually pronounced and the eye and vision suffered.

95. **Meningitis.**—Bijl relates that in 1915 there were 54 cases of meningococcus meningitis recorded in the Netherlands; 226 in 1916 and 449 in the first six months of 1917. Army medical officers are now being called in consultation by civilian physicians in civilian practice, and bacteriologic tests are promptly made. The mortality from meningitis in general was 3.96 per 10,000 inhabitants in 1901 but dropped to 1.41 in 1916. The mortality in 1916 was 54 per cent., and was 43 per cent. in the first half of 1917. The distribution of the meningococcus meningitis in 63 communities in 1916 showed that only one case occurred in fifty-one; that is, in 81 per cent. of the cases the "epidemic" meningitis failed to start an epidemic. This was also the case in the first nine months of 1917. In 72 per cent. of the 131 communities with less than 20,000 inhabitants the "epidemic" was restricted to one case.

He suggests that probably many cases in the past have escaped detection as only the bacteriologic findings are able to differentiate the sporadic from the "epidemic" type, and the microscope was rarely used until recently. One fact which renders this plausible is that the supposed sporadic meningitis in past years was sometimes followed by several other cases, small epidemics of 17, 14, 16, 18 fatal cases, as was the record at Vlaardingen (about 20,000 inhabitants) in the years 1901-1904. This same multiplication of cases or small epidemics has been observed also with croupous pneumonia. This usually occurs sporadically but there are sometimes small epidemics and even extensive epidemics. Another point of resemblance between the "sporadic" and the meningococcus types was revealed by reexamination of men who had had sporadic meningitis in recent years. Deafness and other complications were found numerous, which may be accepted as further evidence of the meningococcus' evil influence. In the experiences of the last three years, instances of direct contagion are known, but they are very rare. One soldier was already sick when he went home on leave and his brother also developed the disease. Another man from the same camp had been home on a furlough a few days before a case developed in the two families he had visited, and three weeks later another case in the family of another soldier from that camp. There had never been any cases in the camp at that time, but three months later cases began to develop. Bijl has never witnessed meningitis develop in a known carrier. The cases occur in jumps, and very long jumps. This seems to certify to conveyance by carriers, but it has seldom or never been demonstrated. Unhygienic conditions and especially overcrowding favor its development, and in the Netherlands conditions now almost invite it: the trips of soldiers to and fro, the overcrowding in barracks, the scarcity of dwellings in general, scarcity of food, and lack of fuel, render the hygienic conditions less favorable. But, even with all these drawbacks, the deaths from meningitis of all kinds, he reiterates, number only a third of the figure in 1901.

99. **Liver Syphilis Simulating Abscess.**—The man had lived in the tropics and the diagnosis of liver abscess seemed beyond question, but under potassium iodid, the symptoms began to subside and the Wassermann reaction confirmed the syphilitic nature of the lesion.

Ugeskrift for Læger, Copenhagen

Jan. 3, 1918, 80, No. 1

101 *Acute Leukemia. S. Baastrup.—p. 5.
102 *Nomenclature for Diseases of the Blood. V. Bie.—p. 14.
103 *Test for Urobilin in the Urine. S. Marcussen and S. Hansen.—p. 16.

101. **Acute Leukemia.**—Baastrup reports in detail four cases of acute leukemia. The patients were two unmarried women of about 34, a man of 38 and a [illegible]. In three of
the cases the sudden onset of severe sore throat led t
diagnosis of diphtheria. In some of the cases on recor
stomatitis and gingivitis were the first manifestations o
disease to attract attention, but in the majority of
several weeks or months of lassitude and lack of ap
with occasional vague pains and more or less anemia
erally preceded the other symptoms, but the latter
developed suddenly and in a most pronounced form.
course then resembles that of acute sepsis. That leukem
an infectious disease now seems to be beyond question.
has reported a case of leukemia in a housemaid develo
soon after the death of the head of the family from leuke
with a three years' course, and seven other writers
reported similar multiple cases in a family. The hemorrh
diathesis may manifest itself first in the internal ear, re
or serous and mucous membranes as well as in the s
Leukemic infiltration is common, and also enlargement
glands, liver and spleen, but they are not inevitable.
most constant manifestations are the continuous fever, anen
hemorrhagic diathesis and stomatitis. All the other sy
toms are inconstant, and it is more than probable that s
cases have escaped recognition.

102. **Nomenclature for Diseases of the Blood.**—Bie
retain plethora, hydremia, leukemia and leukocytosis
suggests, instead of leukopeny, "oligoleukocytosis,"
"polycytosis" when both reds and whites are increas
numbers, the plasma reduced in volume. If the corp
are in normal proportions but the amount of plasma is
normal, he suggests "meioplasmia"; with "erythrocy
when the whites are normal and the reds increase
"erythremia" as the idiopathic chronic disease from
cause.

103. **Dilution Test for Urobilin in the Urine.**—March
and Hansen treated urine containing urobilin with v
acids and worked out a simple technic which, they
offers several advantages over those in vogue, the
being too complicated for clinical use or not sensitive en
The method described does not give the absolute figure
it takes only a few minutes to show whether urobi
present, and in what proportions. To 10 c.c. in the gla
are added 3 drops of 5 per cent. tincture of iodin.
mixing, 1 c.c. is transferred to the reagent glass B.
the 9 c.c. urine left in the glass A are then added 9
absolute alcohol and 1 gm. zinc acetate. When the
acetate is entirely dissolved, the whole is filtered throu
smooth filter (9 cm. in diameter) into a reagent glass of
diameter. This reagent glass now contains the 9 c.c.
plus the 9 c.c. alcohol, etc. The total volume is thus 18
the dilution is 1:2. If the filtrate is still fluorescent, th
the glass B 3 c.c. of water, 1 c.c. of a clear 20 per
aqueous solution of zinc acetate and 5 c.c. of alcoho
added to the mixture in glass B. The dilution here is
If the filtrate then is still fluorescent, 5 c.c. of urine
placed in still another glass containing 5 c.c. water a
drops tincture of iodin. Of this mixture, 1 c.c. is transfe
to a new glass and mixed with 3 c.c. water, 1 c.c. of
per cent. solution of zinc acetate and 5 c.c. of abso
alcohol and filtered; the dilution here is 1:20. If the filtr
still fluoresces, 5 c.c. of urine are mixed with 15 c.c. wa
and 2 drops iodin. Of this mixture 1 c.c. is transferred t
new glass and to it are added 3 c.c. water and 1 c.c. 20
cent. solution of zinc acetate, with 5 c.c. alcohol, and
whole filtered; the dilution here is 1:40. Among the fi
apparently normal persons tested, fluorescence occurred w
dilution of 1:10, so that 1:20 seems the lowest li
pathologically increased urobilinuria. In some perso
liver disease, fluorescence occurred with dilutions of 1
1:80 or even greater dilutions than this. The alcoh
portion has to be not less than 40 per cent. All t
required for the test are four graduated pipets; 1 gm.
pulverized zinc acetate; a 20 per cent. solution of zinc acet
with a 5 per cent. tincture of iodin and a dropper for it.

A number of experiments with other technics are descri
in detail. With Schlesinger's test, a positive response
obtained both with liver disease, with various surgical af
tions, and in the healthy.